Volume 3

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable James Donato, Judge

ERICA FRASCO, et al.,   )
individually and on behalf of   )
all others similarly situated,   )
)
          Plaintiffs,   )
)
VS.   )   NO. 3:21-CV-00757 JD
)
FLO HEALTH, INC., META   )
PLATFORMS, INC.,   )
)
          Defendants.   )
_____)

                         San Francisco, California
                         Wednesday, July 23, 2025

                  TRANSCRIPT OF PROCEEDINGS

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1 <u>Wednesday - July 23, 2025</u>   <u>9:09 a.m.</u>

2   P R O C E E D I N G S

3   ---oOo---

4   (Call to order at 9:09 a.m.)

5   (Proceedings were heard out of the presence of the jury.)

6   **THE COURTROOM DEPUTY:** All rise. Court is now in

7   session, the Honorable James Donato presiding.

8   **THE COURT:** Good morning.

9   **ALL:** Good morning, Your Honor.

10   **THE COURT:** Okay. All set?

11   **MR. CANTY:** Good morning.

12   **THE COURT:** Let's bring up the witness, please.

13   **MR. LEVIS:** We just have one housekeeping issue first.

14   After Your Honor's ruling on Exhibit 110 yesterday, we

15   have planned to have slides with Dr. Egelman. We had removed

16   those slides from the presentation. We also made one

17   additional change of un-highlighting one of the words -- a

18   couple words in one of the slides at counsel's request. We

19   would like to just re-mark an updated version of that

20   demonstrative so that the record is clear.

21   **THE COURT:** Which one was this? With the phones on

22   it?

23   **MR. LEVIS:** Yes. Yeah.

24   **THE COURT:** It's fine. It's a demonstrative.

25   **MR. LEVIS:** We're just trying to keep things clear.

PROCEEDINGS

1   That's all, Your Honor.

2   THE COURT: I mean, it's not in evidence.

3   MR. LEVIS: Yeah.

4   THE COURT: That's fine.

5   MR. CLUBOK: It's only because there was an exchange

6   of demonstratives pursuant to the rules on Monday. That

7   version that we got on Monday was marked as Exhibit 2000.

8   There is apparently a version that's now going to be used or

9   that was used -- started to be used yesterday.

10   MR. LEVIS: Yes, correct.

11   MR. CLUBOK: It's going to be continued to be used

12   today, and I understand from this that the new version would be

13   marked 2000 A.

14   MR. LEVIS: We can do 2000 A. That's fine.

15   MR. CLUBOK: Okay. And 2000 A -- the only difference

16   between that and the version we got on Monday, I understand

17   from plaintiffs' counsel, is they removed the last --

18   Sorry. I apologize. On Sunday.

19   THE COURT: Can I just jump in? If you've worked this

20   all out, I don't need to hear about. It doesn't matter to me.

21   It's a demonstrative.

22   Now, I would not make a big deal about it with the jury.

23   They're not going to remember any of this. So just show it

24   again, and life goes on.

25   MS. SHARTON: Your Honor, you asked us to report back

1   on the witness in London --

2   THE COURT: We'll do that on break. I'm going to get

3   started, and we'll do that a little bit later. But we will do

4   that.

5   MS. SHARTON: Thank you.

6   THE COURT: All right. Bring up the witness, please,

7   and bring in the jury.

8   (The jury enters the courtroom.)

9   (Proceedings were heard in the presence of the jury.)

10   (Serge Egelman steps forward to resume the stand.

11   SERGE EGELMAN,

12   called as a witness for the Plaintiffs, having been previously

13   duly sworn, testified further as follows:

14   (The jury enters the courtroom.)

15   (Proceedings were heard in the presence of the jury.)

16   THE COURT: Okay. Everyone is dry and we're ready to

17   go.

18   THE COURTROOM DEPUTY: You may be seated. Calling

19   Civil 21-757, Frasco versus Flo Health, Inc.

20   THE COURT: Okay. Go ahead.

21   DIRECT EXAMINATION

22   MR. LEVIS: Can you please switch the input to the

23   plaintiff?

24   BY MR. LEVIS:

25   Q.   Good morning, Dr. Egelman.

1   **A.**   Good morning.

2   **Q.**   Welcome back.

3   **A.**   It's good to be back.

4   **Q.**   I'd like to briefly just recap a little bit where we left

5 off yesterday before moving on to some of the discussion about

6 your testing.

7   Do you recall yesterday we looked at these screens from

8 the Flo app?

9   **A.**   Yes, I do.

10   **Q.**   Can you just remind the jury what we're looking at here?

11   **A.**   Yeah. This is the onboarding survey that everyone needs

12 to complete to begin using the app. Basically, all the

13 insights that the app derives come from the answers to these

14 questions.

15   **Q.**   And what happens after users complete the onboarding

16 survey?

17   **A.**   It then goes to this interstitial screen saying --

18 predicting cycles, and then they get this main screen, which is

19 the calendar views, which is what you see on the left here.

20   **Q.**   And you testified yesterday that the information on the

21 left regarding predictions about when a woman would be

22 ovulating or her period would be based on the answers to the

23 onboarding survey questions; right?

24   **A.**   Yes, exactly.

25   **Q.**   I'd like to take a moment and walk through your testing

1 using one of the questions in the onboarding survey as an

2 example.

3   Can you explain what we're looking at here?

4 A.   Yeah. So this is the screen -- it's basically the first

5 screen of that survey where you answer what the purpose of

6 using the app was.

7   The -- the answers are, you know, "I want to get pregnant"

8 or "I just want to track my cycle."

9 Q.   And did your testing uncover information relating to a

10 woman's answer to this question being transmitted to Meta?

11 A.   Yeah. When a woman answers this question, that's recorded

12 by Meta and then transmitted back to their servers.

13 Q.   Can you explain this log file that we're looking at for

14 the jury?

15 A.   Yeah. So this is one of those transmissions to Meta. And

16 you can see what's highlighted here is -- it says event name,

17 R_CHOOSE_GOAL, and basically, you know, event name means the

18 user was doing a particular thing on the phone and it's,

19 you know, reporting about that. So here the event is that they

20 choose -- they chose a goal from that screen.

21   And then if you look at the second highlighted part below,

22 it says GOAL:GET_PREGNANT. And so that's a value for that

23 event name, you know, indicating that the user indicated "get

24 pregnant."

25   And, you know -- you know, the internal program

1   representation -- you know, it's not going to store "I want to

2   get pregnant" or, you know, "I just want to track my cycle."

3   Internally, the program doesn't keep track of data like that.

4   They're, you know, variable names. And so really it's

5   just recording which of the two buttons the user picked and,

6   you know, how they were labeled, even though it's not,

7   you know, storing the entire string of "I want to get pregnant"

8   or "I just want to track my cycle."

9   Q.   What happened if a user would select "I just want to track

10   my cycle"?

11   A.   Then it would also send, you know, the event name of

12   R_CHOOSE_GOAL, but the value would be GOAL:TRACK_CYCLE to

13   indicate that that's what the -- you know, that's why that user

14   is using the app.

15   Q.   Did you examine the computer code running behind the

16   scenes to determine how this information was created?

17   A.   Yes, I did.

18   Q.   Can you explain what happens when a user would press

19   "next" on the screen?

20   A.   Yeah. So on all of these screens, there's a -- basically

21   a listener function. In software engineering it's called a

22   "callback." And basically, it's listening for when the user

23   clicks the "next" button on the screen, and when the user does,

24   that triggers a function which calls the function that you see

25   at the top here on CHOOSE_GOAL, you know, to indicate the user

1 has clicked the button and now, you know, the app is taking

2 this action now that the user has chosen a goal.

3   And you can see within that, there's another -- there's

4 another function that that function, in turn, calls, which is

5 called "LOG_SINGLE_EVENT." The first function on "CHOOSE_GOAL"

6 takes a parameter. So it takes input to the function, and then

7 it passes that input on to this other function,

8 "LOG_SINGLE_EVENT."

9   Here, when it calls LOG_SINGLE_EVENT, it has two

10 parameters that it passes. One is R_CHOOSE_GOAL, so the event

11 name that it wants to log, and then the other is a value for

12 that.

13 Q. And the values that you're referencing, those are values

14 related to the answers of the question on the screen on the

15 left; correct?

16 A. Yeah, it -- it records what the -- how the user answered

17 the question.

18 Q. And it's "get pregnant" if the user selects "I want to get

19 pregnant," and it would be "track cycle" if the user selected

20 "I want to track my cycle"?

21 A. Yeah. That's how the program internally represents that

22 information.

23 Q. After LOG_SINGLE_EVENT is called, what happens next?

24 A. So it actually goes through several different functions

25 very quickly.

1   So in this screen, it's an oversimplification. It shows

2 one arrow from -- you know, going from -- after it calls

3 LOG_SINGLE_EVENT it calls several other functions in quick

4 succession, but eventually it calls a function that's titled

5 LOG_EVENT_FACEBOOK.

6   And, you know, all of these functions to this point are

7 code that was written by Flo. However, it's within this

8 function that's titled LOG_EVENT_FACEBOOK which also takes the

9 parameters. It takes, you know, event names. That's where it

10 actually invokes the Facebook SDK.

11   So basically, that's the moment that the Facebook SDK is

12 invited to start recording the events.

13 **Q.**   And is it at this point that the Facebook SDK records the

14 user's answer and begins transmitting it to Meta servers?

15 **A.**   Yes. Yeah. It does several things. It -- you know, it

16 transforms the data into a format that Meta might expect, but,

17 you know, all of that is happening, you know, in rapid

18 succession, imperceptible to the user. So -- yes. Yeah.

19 **Q.**   The highlighted function in the middle here, this

20 .Facebooklogger, the log event, how do you know that that's

21 part of the Facebook SDK?

22 **A.**   Because -- so in Java -- I think, actually, on the

23 previous screen there was the highlighting, which, you know, if

24 you mouse over in developer tools, it will tell you where that

25 part of the code came from.

1   So here, the -- you know, the line that's highlighted,

2 this .Facebooklogger.logevent, that comes from code that begins

3 with com.facebook, and that indicates that it's pulling that

4 from the Facebook SDK.

5   This slide -- it was on one of the slides -- the previous

6 slide, I think --

7 Q.   Sure.

8 A.   -- here. And so, you know, here, you can see that that

9 function originated from com.facebook.appevents, which is the

10 part of the Facebook SDK that records app events.

11   I think one thing that might also be worth pointing out

12 here, though, is for this LOG_EVENT_FACEBOOK that is Facebook's

13 code and written by Facebook, there are no parameters where,

14 you know, the Flo app passes the personal information.

15 Instead, all of that -- you know, the identifiers and

16 information about the device that Facebook uses to track the

17 user -- the Facebook SDK just gets that automatically.

18 Q.   Just going back to this slide --

19   THE COURT: Can I just jump in?

20   But -- so Facebook gets that automatically only for users

21 who are Facebook users at the time that they were using the

22 Flo app?

23   THE WITNESS: No, that's not true at all.

24   THE COURT: Tell me why.

25   THE WITNESS: Well, when the code runs in the app, it

1   doesn't know who is and who is not a Facebook user, and so it

2   just sends the data indiscriminately back to Facebook.

3   And also, Facebook does save the data from non-Facebook

4   users too. They refer to those as "shadow profiles." This

5   came out in several of the prior government inquiries. I think

6   there are public documents from the U.K. --

7   MR. CLUBOK: Objection, Your Honor.

8   THE COURT: Overruled.

9   Non-Facebook users -- how would Facebook have access to

10 that?

11   THE WITNESS: I mean, if non-Facebook users are using

12 the app, it's -- it's copying data from any user, regardless of

13 whether they're a Facebook user.

14   THE COURT: No, I know, but we were just talking about

15 it. You said Facebook has this personal data from its own

16 records. How would they have that for a non-Facebook user?

17   THE WITNESS: They collect data from all sorts of

18 different sources. So they have, you know, their web tracker,

19 for instance, is known as the Facebook pixel. It's about a

20 third of all websites. The mobile SDK we found in about a

21 third of mobile apps.

22   And so the whole enterprise relies on collecting data from

23 lots of third-party sources, so when Facebook started out, the

24 main business model was --

25   THE COURT: Okay. I totally get it.

1   THE WITNESS: Thank you.

2   THE COURT: Please go ahead, yeah.

3 BY MR. LEVIS:

4 Q.   If we could just turn back to this slide briefly, where

5 the red arrow is showing the function that you identified was

6 part of the Facebook SDK, how long does it take after a user

7 presses "next" for this function to record their answer?

8 A.   It's instantaneous. So, you know, as I said, there are --

9 you know, the second blue arrow pointing down is an

10 oversimplification because I recall there might have three or

11 four functions that were called in between before

12 LOG_EVENT_FACEBOOK is called. But this is imperceptible to a

13 user.

14   You might have heard, you know, when computers are

15 described in gigahertz. What that means is a billion

16 operations per second. And so while, you know, one of these

17 lines of Java is going to translate to, you know, more than one

18 operation on your computer, we're still talking about

19 microseconds for all of this to happen, for the Facebook SDK to

20 record the date.

21 Q.   Is that something that a woman using the Flo app would

22 even perceive as happening?

23 A.   No, absolutely not, because there's also -- you know, at

24 the same time that this is happening, you know, imperceptibly

25 because of the amount of time it takes, there's no UI

1 indication that data is being transmitted, much less collected.

2 So the user would have absolutely no way of knowing that any of

3 this is happening.

4 Q.   You just said "UI." What is UI?

5 A.   Sorry. The user interface. So there would be no visual

6 feedback on your phone when you're using the phone to indicate

7 that, you know, Facebook has acquired your data and Facebook is

8 sending it off the device to -- you know, to their own servers.

9   (Reporter interruption for clarity of the record.)

10 BY MR. LEVIS:

11 Q.   In your testing, did you observe a pop-up or other

12 notification at this point that alerted a woman that the

13 Facebook SDK was recording her answers and transmitting them to

14 Meta servers?

15 A.   No.   There were -- there would be no way to know that. I

16 mean, I -- when I give talks about this type of research, I

17 make a joke at the beginning that people ask me how can they

18 find out what data is collected by their mobile apps, and my

19 response is: It's easy; just build your own bespoke network

20 analysis tools, decompile the app, do some reverse-engineering,

21 and suddenly you can figure out what's happening to your data.

22   Obviously, that's ridiculous. The average person probably

23 doesn't understand what any of those things are, much less how

24 to do them. But that illustrates the situation here, that

25 there's really no way that users can understand this.

1 Q.   Was there an option at this point in the Flo app for users

2 to stop the transmission of their information to Meta?

3 A.   No. No.

4 Q.   Were users able to stop the recording of their information

5 by the Facebook SDK?

6 A.   No.

7 Q.   Did you observe any evidence in your review of the Flo app

8 that the Flo app was filtering out the transmission of any

9 events or health information to Meta servers?

10 A.   No, absolutely not. There were some documents in

11 discovery where they talked internally afterwards about maybe

12 adding some filters to do just that. But it was clearly never

13 implemented during the class period, and I'm not even aware

14 it's been implemented at all, given the amount of litigation

15 that Meta faces in this area for doing this in different types

16 of apps.

17   MR. CLUBOK: Objection, Your Honor. Character.

18   THE COURT: We can stay away from any litigation but

19 this one. Okay? Just focus on this one. No mention of any

20 others.

21   THE WITNESS: I'm sorry.

22 BY MR. LEVIS:

23 Q.   I'd like to zoom in on a different portion of this log

24 file for a moment.

25   What does this tell you about who or what is sending

1   users' answers to Flo survey questions to Meta?

2   **A.**   Yeah.   This is what proves that it's Facebook's code

3   that's doing the transmission and not the Flo app code.

4   So like the other network log files that you've seen and

5   that you will see, I guess, this is using the HTTP, the

6   hypertext transfer protocol, which is what your web browser

7   uses to view websites, and so it's a standardized protocol.

8   And as part of that protocol, it sends what's known as the user

9   agent string, which identifies the type of web browser you're

10   using and its version.

11   So you probably have noticed that when you visit a mobile

12   website versus a desktop one, you get a different version.

13   That's because of this. When your mobile web browser sends the

14   user agent string, it -- it identifies itself as the mobile

15   version, and so the web server knows what to do.

16   In this particular case, for the user agent string, it

17   says "FB Android SDK 4.24.0," and that indicates that it is, in

18   fact, the Facebook Android SDK Version 4.24.0 that's doing the

19   actual transmission here, not the Flo app.

20   **Q.**   Can you explain what the host string indicates about where

21   this data is going?

22   **A.**   Yeah.   That's another standard part of the HTTP protocol,

23   and that just shows the server that it's connected to.

24   Graph.facebook.com is where the SDK and other services

25   send data when they're sending data to Meta, so that further

1 shows that it is, in fact, the Facebook SDK that's sending data

2 back to Facebook servers.

3 **Q.**   Focusing on another part of the log file, is there other

4 information transmitted with these event names and parameters

5 relating to users' answers at the same time?

6 **A.**   Yeah. So this is what I was getting at before. Meta, on

7 its own, rather -- grabs device identifiers to send back to its

8 servers to identify the user so that Meta can then figure out

9 which Facebook profile matches the person whose phone is

10 transmitting this data so that they can then augment that

11 profile with information about what apps they were using.

12   In this case, you know, it sends the advertiser ID, which

13 uniquely identifies your phone, and they store the advertiser

14 ID alongside your Facebook profile, so that if they've ever

15 seen it before -- because you might have used another Facebook

16 app; you might have used -- I'm sorry -- you might have used

17 another app that had the Facebook SDK where you provided

18 additional personal information -- maybe an e-mail address,

19 location data, what have you -- you might have used the

20 Facebook app on your phone and logged in with the Facebook app

21 on your phone, and at that point it has accessed the mobile ad

22 ID.

23   It can get it in several different ways, and it augments

24 your Facebook profile with that data so that whenever that same

25 advertiser ID, known as the IDFA on Apple devices or AAID, the

1   Android advertising ID on Google Android devices -- they're

2   basically the same thing.

3   But when it gets that from another app in the future, then

4   that allows Facebook to immediately recognize that this is the

5   Facebook profile of this person. And, say, if you're a woman

6   who is trying to get pregnant, they could add information to

7   your profile so that when advertisers come to them to say,

8   "Hey, we'd like to advertise to people trying to get pregnant,"

9   Facebook can then show those particular people ads.

10   So the whole enterprise is for these targeted ads.

11   **Q.**   Is this consistent with your testing across different

12   versions of the Flo app during the class period?

13   **A.**   It is -- it was, absolutely. I was going to add a

14   second -- the last part that's highlighted says "advertiser

15   tracking enabled." That's set to a value of "true," which is

16   an explicit signal to Facebook that they are allowed to use all

17   of this data for advertising purposes.

18   **THE COURT:** Before we leave, can you put that back up.

19   **MR. LEVIS:** Sure.

20   **THE COURT:** Professor, you said -- or is it Doctor?

21   **THE WITNESS:** Doctor. I don't teach. I only do

22   research.

23   **THE COURT:** Doctor, you said that that string that's

24   NAME_EQUAL_ADVERTISER_ID is a unique identifier for your device

25   that you're using?

1   THE WITNESS: Yes.

2   THE COURT: Is that a persistent identifier or does it

3   change every session?

4   THE WITNESS: So I could do the long -- you probably

5   don't want --

6   THE COURT: Just give me the plain --

7   THE WITNESS: It does not change every session. There

8   are public statistics on this.

9   So advertisers like to say this is all privacy-preserving

10   because users can reset it. But the option is very buried --

11   and there have been a lot of studies on this. So on Androids,

12   about 1 percent of users actually know to reset this because

13   it's like several layers deep of menus, none of which are

14   really labeled about privacy.

15   THE COURT: If I can just jump in .

16   If you turn your phone off, it doesn't reset?

17   THE WITNESS: No, absolutely not.

18   THE COURT: Does not reset the unique identifier?

19   THE WITNESS: No.

20   THE COURT: The user has to affirmatively go into a

21   menu to choose to do that?

22   THE WITNESS: Several menus deep to do that.

23   THE COURT: Okay. All right. So it is persistent

24   unless the user affirmatively acts?

25   THE WITNESS: And we know that very few users know to

1   do that.

2   THE COURT: Thank you.

3   Okay. Please go ahead.

4   BY MR. LEVIS:

5   Q.   We just looked at a run-through of one of survey

6   questions, which is the first one, "How can we help you."

7   Did you observe the same process taking place for other

8   questions in the onboarding survey?

9   A.   Absolutely. The rest was remarkably similar.

10   So here what's happening is, again, there's a "next"

11   button. There's another listener function, a callback, that

12   when that button is pressed, that calls this function that's

13   highlighted that's labeled "ON_SELECT_LAST_PERIOD_DATE," and

14   that also takes a parameter, so the function takes input.

15   And in this case, that input is just whether or not the

16   user chose something from the -- you know, the selector here or

17   whether they clicked "I don't know."

18   When that function is called, that, in turn, calls

19   LOG_SINGLE_EVENT, as the previous function did, but here it

20   gives it, you know, a new event name. Here the event name is

21   R_SELECT_LAST_PERIOD_DATE, and the corresponding value that was

22   passed in, whether the user knew their last period or didn't.

23   Q.   And what are the parameters that would be associated with

24   this question to the survey?

25   A.   So in this -- this particular question -- and then there

1   are two others -- it only records whether the user knew the

2   answer or not, so it records known versus unknown.

3   But later it takes that data. And we'll get to that in a

4   little bit.

5   Q.   Is the value "unknown" recorded as a result of the user

6   selecting "I don't know"?

7   A.   Yes. Yeah. So when it says "unknown" as the value,

8   that's because the user indicated that the date of their last

9   period is unknown.

10   Q.   And does this process also result in those values being

11   recorded by the Facebook SDK and transmitted to Meta servers?

12   A.   It's the exact same series of events when -- you know,

13   it's calling the same function here, LOG_SINGLE_EVENT, it does

14   the same thing where it then, you know, invokes the Facebook

15   SDK and calls the log event function that is part of the

16   Facebook SDK.

17   Q.   Taking a look at the next question in the survey, is the

18   process the same here as well?

19   A.   Yes, absolutely.

20   Q.   And does this also result in the Facebook SDK recording

21   values associated with a user's answer and transmitting them to

22   Meta servers?

23   A.   Yeah. There were three, so the last one, this one, and

24   the next, it's known versus unknown. So on average, how long

25   is your period. It reports whether or not the user didn't

1   know -- doesn't know how long their period is on average versus

2   whether they do know it.

3   Q.   And the value "unknown" is associated with the selection

4   of "I don't know"?

5   A.   Correct.

6   Q.   Is that also true for this question in the survey: "On

7   average, how long is your cycle?"

8   A.   Yeah, exactly the same thing.

9   Q.   And is the process the same as what we just looked at in

10   the prior two slides?

11   A.   Yeah, exactly the same as the prior two.

12   Q.   And does this also result in the Facebook SDK recording

13   information related to a user's answers and transmitting it to

14   Meta servers?

15   A.   Absolutely.

16   Q.   And what are the values associated with this answer?

17   A.   The same, whether it was known or unknown.

18   Q.   This question asks a user: What year were you born?

19   How is this different from the prior questions?

20   A.   So here, it -- it records the actual value that was

21   calculated.

22   So it says, you know, on age chosen periods. The event

23   name that it logs is R_AGE_CHOSEN_PERIODS, but you can see for

24   the first function it says VALUE:INT, so it's expecting an

25   integer as input to that function, which is the user's age. So

1   it's passing, you know, an integer that represents the user's

2   age to this function, and that's the value for

3   R_AGE_CHOSEN_PERIODS.

4   Q.   So just to recap the screens we walked through, can you go

5   over this just so we're all clear about what events and what

6   parameters are related to each of the screens that a woman

7   faces when she first uses the Flo app?

8   A.   Yeah. So on the first one, which is labeled Step 2, when

9   the user selects one of those two options, the R_CHOOSE_GOAL

10 event will have values of either "get pregnant" or "track

11 cycle," depending on how they indicated they plan to use the

12 app.

13   For the next three, R_SELECT_LAST_PERIOD_DATE,

14 R_SELECT_PERIOD_LENGTH, and R_SELECT_CYCLE_LENGTH, the value is

15 just known or unknown, depending on whether the user clicked "I

16 don't know" or selected a number from, you know, the chooser

17 thing.

18   And then finally, on the last one, it sends R_AGE_CHOSEN,

19 which I think was known or unknown, but then it also separately

20 sends another value, AGE_, with the integer value of the age as

21 well as a range, which I don't know why it sends both the exact

22 age and this range. So in this screenshot, when testing, I

23 entered 46, and then it reported a range of 45 to 49, you know,

24 which -- yeah.

25 Q.   Now, I know for Steps 3, 4, and 5, the values we looked at

1 were known or unknown in response to those questions.

2   Did there come a time when additional information about a

3 woman's cycle was transmitted to Meta servers by the Facebook

4 SDK?

5 A.   Absolutely. So right after Step 6, where you complete the

6 age thing, it sends an additional event name on top of that,

7 which is SESSION_CYCLE_DAY_FIRST_LAUNCH. You can see that

8 highlighted on the screen here, and that actually has two

9 different parameters that accompany it. One is labeled cycle

10 day. Here the value is 16. The other is cycle day type. Here

11 the value is after fertility window.

12   And so basically what this is is after the user has,

13 you know, communicated their health information with the app as

14 part of the onboarding process, it then predicts their

15 cycle and where they are in the cycle. And so this is

16 communicating to Facebook that this user is 16 days into her

17 cycle, and to add context to that, that means she's after her

18 fertility window.

19 Q.   And so I just want to be clear. Even though the values to

20 some of the questions in the initial survey are known or

21 unknown, the Flo app is using that information to send

22 additional data about a woman's cycle reflecting those answers

23 to Meta?

24 A.   Yeah, absolutely.

25 Q.   Were you here yesterday -- or two days ago, rather, during

1 opening where counsel mentioned that the only data sent was

2 whether there were known or unknown values or user --

3 reflecting whether a user answered a question or not?

4 A.   Yeah, those were lies.

5 Q.   Is that accurate, based on your review of the

6 transmission?

7 A.   No, that's not at all accurate. I mean, you can see right

8 here.

9 Q.   Were you here and did you also hear counsel characterize

10 this as navigation information or analytics data?

11 A.   I mean, it's specifically sent to Facebook for advertising

12 purposes.

13 Q.   Do you consider the fact that a woman is after her

14 fertility window to be navigational information?

15 A.   No.

16 Q.   Is the fact that a woman wants to get pregnant

17 navigational information?

18 A.   No.

19   THE COURT: Can I -- I'm -- just so I'm clear.

20   Looking at that exhibit, which is on the left, what in

21 that document tells you that this information is being sent to

22 Facebook servers?

23   THE WITNESS: Right at the top. So I went over this

24 earlier. If you look at the top, the line that begins -- well

25 so user -- the line begins "user agent," which is like five

1   lines down.

2   THE COURT: Yes.

3   THE WITNESS: That indicates it's the Facebook SDK

4   that's doing the transmission.

5   And then if you look one, two, three -- five lines below

6   that where it says "host.graph.facebook.com," that indicates

7   it's going to Facebook.

8   THE COURT: Okay. Thank you.

9   THE WITNESS: And the fact that as part of this

10   protocol there's a hand-shaking process where the server says

11   whether it successfully received the data or not, the server,

12   you know, confirmed that this data was, in fact, received.

13   BY MR. LEVIS:

14   Q.   I'd like to focus on one other thing on the log. If you

15   look towards the bottom of the page on the left where this

16   callout comes from, five lines from the bottom, do you see

17   there's an advertiser ID in there as well?

18   A.   Yeah. That was -- the advertiser ID was sent consistently

19   with Facebook's transmissions.

20   Q.   Is that the same advertiser ID you were referring to

21   previously?

22   A.   Yes. Yes.

23   Q.   And what does that tell you about what is happening with

24   this information that a woman is on day 16 of her cycle and

25   after her fertility window?

1   **A.**   And it's telling Facebook who that woman is, allowing them

2   to identify her Facebook profile if she has one. And it's also

3   signaling to Facebook that that data can be used for their own

4   targeted advertising purpose.

5   **THE COURT:** I'm sorry to jump in.

6   Can you highlight the -- I don't see the advertiser ID

7   reference.

8   **MR. LEVIS:** Sure. It is --

9   **THE COURT:** Can you highlight that?

10   **MR. LEVIS:** I'm not sure I can highlight that.

11   **THE WITNESS:** If you count five from the bottom on the

12   left.

13   **THE COURT:** Oh, five from the bottom?

14   **THE WITNESS:** Yeah.

15   **THE COURT:** Oh, okay. So the line that says "Events &

16   Advertiser ID"?

17   **THE WITNESS:** Correct.

18   **THE COURT:** And is that number that follows, that

19   579 number -- is that the unique identifier?

20   **THE WITNESS:** It is.

21   **THE COURT:** For that device?

22   **THE WITNESS:** It is, yes. But that's -- to be --

23   **THE COURT:** That's okay. He'll take it from here.

24   Go ahead.

25   \\\

1   BY MR. LEVIS:

2   Q.   That's one example of what you saw. Are there other

3   examples of the session cycle day event that have different

4   values for a woman's cycle?

5   A.   Yeah. So it records, you know, the integer of what day in

6   the cycle they're on, and then it adds this other piece which

7   adds context.

8   So here it's day 22 and indicates "ordinary," which I

9   think meant not -- neither ovulating nor on period.

10   There were several different descriptives like that.

11   Q.   And this also in this example indicates that a user's age

12   chosen is age 31; right?

13   A.   Yes.

14   Q.   And it indicates an age range of 30 to 34?

15   A.   Yes, which encompasses 31.

16   Q.   And this would have been accompanied by an advertising ID

17   as well?

18   A.   Absolutely.

19   Q.   And what does that tell you about what's happening with

20   this information that there's a 31-year-old woman who is on

21   day 22 of her cycle and in the ordinary phase of her cycle?

22   A.   I mean, it's clearly personally identifiable health

23   information that's being used for advertising purposes.

24   Q.   And this is being transmitted by the Facebook SDK to Meta

25   servers?

1   **A.**   It is.

2   **Q.**   I'd like you to take a look at this example as well and

3   tell us what you see.

4   **A.**   Yeah. So it's another example of that. So here cycle

5   day 5, and the additional information is "period," indicating

6   that the woman is likely having her period at that moment.

7   **Q.**   And so this is actually communicating to Meta that a

8   woman, based on her answers to the onboarding survey, is on

9   day 5 of her cycle and having her period currently?

10   **A.**   That's exactly what it's indicating, and it's indicating

11   exactly who that woman is.

12   **Q.**   Moving on to another example, can you tell us what we're

13   looking at in this log?

14   **A.**   So -- yeah, another example of the same. So here it's

15   cycle day 9, and it's explaining that on that ninth day of her

16   cycle, it's the fertility window before ovulation.

17   **Q.**   And so as with the prior examples, is this also being

18   accompanied by advertising identifier that is capable of

19   linking this information back to a specific woman?

20   **A.**   Yeah, but -- actually, I want to add a little context to

21   that, which is there are several other pieces of data that get

22   sent which Facebook also uses to try and identify the user, not

23   just the advertising ID?

24   If the advertising ID is present, great. You know, they

25   win. That's a direct match if they have that advertising ID on

1   file.

2   But there's also other data in here that they try and use

3   to identify the user if, for some reason, the user is of those

4   1 percent who recently reset the advertising ID or, you know,

5   deleted it altogether on newer Android devices. But that's

6   irrelevant, because that would be outside the class period.

7   **Q.**   What is that information you're referring to?

8   **A.**   So the IP address is used to uniquely identify devices,

9   but they also do what's known as device fingerprinting, where

10   they take a bunch of disparate data points, which we refer to

11   as "indirect identifiers," and enough of these put together can

12   uniquely identify someone.

13   So, for instance, you know, an Android device running

14   version whatever of the operating system in this language, this

15   time zone, this specific -- you know, specific hardware

16   manufacturer, this screen resolution -- if you take all of

17   those data points together, you can use those to uniquely

18   identify someone, and Meta does that.

19   **Q.**   Does any of that information convey a user's location to

20   Meta?

21   **A.**   Yes.

22   **Q.**   What specifically?

23   **A.**   So the IP address is one way. But also, there's --

24   there's other data that's frequently collected that can collect

25   location data -- that can use -- can be used to determine

1   location.

2   **Q.**   I want to look at another example of this

3   SESSION_CYCLE_DAY_FIRST_LAUNCH event.

4   Can you explain what is happening in this one?

5   **A.**   Yeah. So here it's cycle day 13, which is ovulation.

6   So here Facebook learns when a particular person is

7   ovulating.

8   **Q.**   And this was also being sent with an advertising ID?

9   **A.**   Yes.

10   **Q.**   And as you testified earlier, did this -- would this also

11   have included other identifying information like an IP address

12   or information related to a user's specific device fingerprint?

13   **A.**   All of that information that I've described -- it gets

14   sent consistently with all these transmissions.

15   **Q.**   And the value that a woman was ovulating was derived from

16   her survey question answers?

17   **A.**   Yes.

18   **Q.**   So just so I'm clear, this indicates that when a woman

19   filled out the Flo onboarding survey and answered information

20   about her period that Meta was recording the fact that she was

21   on day 13 of her cycle, she was ovulating, and a series of

22   unique identifiable information that it could link to her

23   Facebook account?

24   **A.**   Yes.

25   **Q.**   I want to talk about the next part of the app.

1   You testified earlier that after you go to -- go through

2 the onboarding survey, there is a home screen and an

3 opportunity to enter symptom information.

4   Do you remember that?

5 **A.**   I do.

6 **Q.**   Can you explain what we're looking at here?

7 **A.**   Yeah. So when you enter symptoms -- I think we've seen

8 this screen before. You know, you enter symptoms.

9   On this particular screen, it doesn't record the values.

10 It just records that you entered one of these options. So, for

11 instance, you can see the highlighted part below,

12 PLUS_MENU_ADD_SEX. That indicated that the user, you know,

13 selected one of options from sex and sex drive, but it doesn't

14 say which option.

15   And you have the same thing with ADD_SYMPTOM for like log

16 symptoms. It will indicate whether the user selected any of

17 those, but it doesn't actually communicate which one in

18 particular.

19   But we'll put a pin in, I guess, the ADD_SEX one because

20 we'll revisit that, because there were earlier versions of the

21 app that did communicate to Facebook when the user was having

22 sex.

23 **Q.**   I was just going to ask you about that now. We don't have

24 to put a pin in it.

25   On the ADD_SEX option, can you tell us how that changed?

1   **A.**   Yeah. So the version that you see here is actually only

2   available in later versions of the app. You can see the

3   options are "didn't have sex," "protected sex," "unprotected

4   sex," "high sex drive," and "masturbation."

5   Prior to this, the version that you see here, there were

6   only two options. There was protected versus unprotected sex.

7   So whichever of those options the user selected when it

8   sent PLUS_MENU ADD_SEX, that communicated to Facebook that the

9   user had sex. You know, certainly, I guess it's not directly

10   communicating whether it's protected or unprotected, but when

11   it's sent in conjunction with, you know, CHOOSE_GOAL get

12   pregnant, I'm pretty sure you could figure out which of the two

13   it is.

14   **Q.**   For the other options here as well, there's a value

15   PLUS_MENU_ADD_FLUID, for example. Do you see that?

16   **A.**   Yes.

17   **Q.**   And what did that correspond to?

18   **A.**   The same thing where, you know, there were several

19   different options for describing fluids and -- you know, it

20   reports that the user selected one of them, but not which.

21   **Q.**   So if a user were to answer this question, for example, it

22   would indicate that they had entered that they had fluid of

23   some sort in the app, it would indicate that they'd had sex if

24   they selected protected or unprotected, and this information is

25   being transmitted to Meta servers?

1   **A.**   That's exactly right.

2   **Q.**   There have been claims in this case that this information

3   is necessary in order to improve device performance or

4   performance of the app.

5   Is that accurate to you?

6   **A.**   I would like someone to explain to me how that is

7   possible.

8   **Q.**   Does -- I'm sorry.

9   **A.**   No, no, no. That is absolutely not accurate. I mean,

10   this is being used for advertising purposes.

11   **Q.**   How many apps have you studied, again, in your career?

12   **A.**   Hundreds of thousands.

13   **Q.**   Is knowing whether a woman is ovulating necessary in order

14   to improve the performance of an app?

15   **A.**   No.

16   **Q.**   Would you need to tell Meta or Facebook that a woman was

17   before her fertility window or that she had her period in order

18   to -- in order to improve the performance of an app?

19   **A.**   None of these transmissions are required for the

20   performance of the app.

21   **Q.**   Would it be necessary to tell Meta that a woman was having

22   sex or that she was having fluid discharge in order to provide

23   technical services to Flo?

24   **A.**   No.

25   **Q.**   So the information we looked at up until now related to

1   the onboarding survey and the calendar symptom window. Were

2   there other options added to this Flo at some point during the

3   class period?

4   A.   I recall it being -- oh, sorry. This screen, yes. So I

5   thought you were talking about the one you were showing.

6   This screen, yes. So at some point -- I think it was

7   Version 4 where they added this option for "I'm pregnant," and

8   so in this case, you know, the value of -- the goal, I think,

9   was "pregnant" as opposed to, you know, "get pregnant" or

10   "track cycles."

11   Q.   What happened if a user selected "I'm pregnant"?

12   A.   So then it would set the value, you know, in R_CHOOSE_GOAL

13   to pregnant.

14   Q.   So there was actually an R_CHOOSE_GOAL value just

15   "pregnant" in plain text?

16   A.   For some versions, I think, some early versions, the value

17   was actually set to "unknown." I mean, it set the string

18   "unknown," but that corresponded to when you selected "I am

19   pregnant," so that was clearly communicating that the user had

20   selected that button.

21   But, yes, for many versions it was sending "pregnant."

22   Q.   Was this value also recorded by the Facebook SDK and

23   transmitted to Meta?

24   A.   It was.

25   Q.   Do you consider the fact that a person selected that they

1   are pregnant to be navigational information?

2   **A.**   No.

3   **Q.**   Would it have been necessary to disclose that a woman was

4   pregnant to improve the performance of the Flo app?

5   **A.**   No, not at all.

6   **Q.**   I want to talk about what happened after a woman selected

7   that "I'm pregnant" in the app.

8   Can you explain these screens?

9   **A.**   Yeah. So there's a slightly different -- you know, I was

10   going to say a different flow, not to -- no pun intended.

11   There's a different progression of screens because

12   obviously the app is no longer trying to calculate cycle;

13   right? So instead, the app -- you know, the first question is

14   "What is your pregnancy week" to basically calculate, you know,

15   the expected -- the day, the due date.

16   And there's an option of "I don't remember," and if you

17   select that, then the app asks other questions to try and

18   calculate that, like whether you knew the date of conception or

19   the date of your last period.

20   But, yes, it asks several questions to try and infer the

21   due date. And then, again, that culminates with entering your

22   age, and then it -- you know, it sends all of that to Meta.

23   **Q.**   In your testing, did you observe the Facebook SDK

24   recording the answers to these questions and transmitting them

25   to Meta servers?

1 **A.**   I did, yes.

2 **Q.**   And what did you observe?

3 **A.**   Well, here's an example of it. So here, you know, one of

4 the events for the first question is, you know,

5 R_PREGNANCY_WEEK_CHOSEN, and that includes the actual value

6 that the user selected. So during the testing, you know, I

7 chose week six, just for testing purposes, and it reports

8 chosen week six.

9   R_AGE_CHOSEN_PREGNANCY, that reports the age that I had

10 entered. In this case, I entered a value of 22.

11   And then it sends that SESSION_CYCLE_DAY_FIRST_LAUNCH

12 event that we saw before, and here it sets cycle date of 36 and

13 cycle day type to pregnancy to communicate that the user is on

14 their 36th day of pregnancy, which is then consistent with week

15 six.

16 **Q.**   And so these values come directly from the user's answers

17 to the survey questions after they select "I'm pregnant"?

18 **A.**   Yes, they do.

19 **Q.**   And this information -- was this also being transmitted to

20 Meta servers?

21 **A.**   Yes.

22 **Q.**   And is that reflected on the log here?

23 **A.**   It is.

24 **Q.**   Can you just indicate for us where that is?

25 **A.**   Yeah. Again, at the top, where it says

1 host:graph.facebook.com, that's indicating that it was sent to

2 Facebook.com.

3   Also -- I guess I didn't mention before. At the very,

4 very top, the very first line with -- it starts with "packet"

5 in parentheses, that indicates the unique identifier for the

6 app, and it says "outbound to graph.facebook.com," and that's

7 just added with -- you know, our software.

8 Q.   So we just saw several examples of the

9 SESSION_CYCLE_DAY_FIRST_LAUNCH where it transmitted that a

10 woman was ovulating, before her fertility window, after her

11 fertility window, and had her period, or was in the ordinary

12 part of her cycle.

13   Do you remember that?

14 A.   Yup.

15 Q.   You're telling me that Meta is also recording when a woman

16 is pregnant, how far into her pregnancy she is, and what day or

17 week of her pregnancy she's in?

18 A.   Yes, and who she is.

19 Q.   And is this also being recorded with an advertising

20 identifier that allows them to specifically link the

21 information to an individual Facebook user?

22 A.   Yes. That's how they determine who she is -- one of the

23 ways that they determine who she is.

24 Q.   I just want to summarize what we looked at in the past few

25 slides so we can be clear about what data is being transmitted

1   with which event.

2   Can you explain or review this for us, please?

3   **A.**   Yeah.   So this is just recapping the different values that

4   were sent along with these events.

5   So the first is choosing the goal.   Eventually, there were

6   three different options: Get pregnant, track cycle, pregnant,

7   and those correspond to what the user selects at the beginning.

8   There are the three, you know, intermediary ones where you

9   select days related to your period where it reports, known

10   versus unknown, so R_SELECT_LAST_PERIOD_DATE,

11   R_SELECT_PERIOD_LENGTH, R_SELECT_CYCLE_LENGTH.   Those indicate

12   whether the user selected that they don't know the answer to

13   the questions or not.

14   It then reports the age, so R_AGE_CHOSEN.   It then sends,

15   you know, AGE_, and the integer value as well as age range and

16   a range surrounding that integer value as well.

17   R_AGE_CHOSEN_PERIODS or R_AGE_CHOSEN_PREGNANCY were also

18   sent in some versions, depending on whether the user selected a

19   goal of tracking periods or pregnancy.

20   SECOND_CYCLE_DAY_FIRST_LAUNCH, that's where we saw it

21   reports detailed information about where in the cycle the woman

22   is.

23   And then, finally, if they are pregnant, it reports the

24   number -- the week of pregnancy that they are in.

25   **Q.**   All right.   Several of these values are just in plain text

1 English; correct?

2 **A.** Yeah.

3 **Q.** Were you here for opening statements, and did you hear

4 Flo's counsel promise that when users saw the data, it would be

5 gobbledygook?

6 **A.** Yeah. I had thoughts on that.

7 **Q.** Is that -- is "gobbledygook" a term that you're familiar

8 with from your experience as a researcher?

9 **A.** No, because actually, I thought it was funny because on

10 that screen there was a lot of useful information that I wanted

11 to be able to point out on that screen. For instance, it

12 showed the advertiser ID. It showed other information about

13 the device which could be used to uniquely identify you --

14   **THE COURT:** Not too fast.

15   **THE WITNESS:** I'm sorry.

16   **THE COURT:** Just take a break for a moment. Not too

17 fast. We've got to get a clean record.

18   **THE WITNESS:** And then also had, you know, event data

19 in there, so on one of the screens during the opening remarks,

20 you know, it showed the goal of using the app, which I think

21 was "get pregnant" in the example.

22   But there was a lot of information that one could -- I

23 don't expect most people in this room to -- you know, to read

24 the traffic capture and be able to make sense of it, but

25 experts in the field can, and, you know, certainly they employ

1   those at Meta, and that's why they're collecting the data, to

2   make use of it.

3   **BY MR. LEVIS:**

4   **Q.**   Is the word "pregnant" gobbledygook?

5   **A.**   No.

6   **Q.**   What about "get pregnant"?

7   **A.**   No.

8   **Q.**   How about "pregnancy"?

9   **A.**   No.

10 **Q.**   What about "ovulation"?

11 **A.**   Nope.

12 **Q.**   How about "age 26"?

13 **A.**   No.

14 **Q.**   Do you need a special key or like a decoder ring to

15 interpret any of these options?

16 **A.**   No.   In fact, I did my full analysis without access to any

17 data supplied by Flo or Meta.   Just from downloading versions

18 of the apps and reverse-engineering them, I was able to very

19 easily make sense of how each of these events was generated.

20 And certainly Meta employs, you know, analysts and engineers

21 with the same skill sets who do this to make sense of that data

22 that they receive.

23 **Q.**   I just want to revisit the advertising identifier and an

24 example we talked about earlier.

25   **THE COURT:** Before we do that, it's been about an

1   hour. Let's take a two-second -- two-minute little stretch

2   break. Just stand up, move around a little bit.

3   (Pause in proceedings.)

4   **THE COURT:** Okay.

5   **BY MR. LEVIS:**

6   **Q.**   There have been claims in this case that advertising

7   identifiers are privacy saving or privacy preserving.

8   Do you agree with that?

9   **A.**   No.

10   **Q.**   Can you explain why?

11   **A.**   I mean, the whole point of the advertising ID is to be

12   able to track your device across apps and services to target

13   you with ads. I mean, the whole reason why they want to

14   collect this is so that they can uniquely identify you and

15   learn about your habits, your behaviors, your preferences, so

16   that they can then tell advertisers they know X about you, and

17   those advertisers can pay money to target ads. And that's all

18   based on uniquely identifying you via the advertising ID.

19   **Q.**   Are you familiar with the term "deidentified data"?

20   **A.**   I am.

21   **Q.**   What does it mean to be deidentified?

22   **A.**   Sure. So deidentified data means data where direct --

23   there are no direct and indirect identifiers such that -- and

24   known indirect identifiers. You remember how I talked about

25   creating a fingerprint by taking lots of different disparate

1 data points that might, taken together, uniquely identify

2 someone?

3   So deidentification is sort -- it's not a guarantee, but

4 basically it means that enough data has been removed to make

5 that reasonably unlikely.

6   And that's in contrast to anonymous data, which is

7 different from deidentified data, whereas anonymous data, it's

8 a theoretical standard, where it's provable that you cannot

9 reidentify someone based on this data. It's a very high bar.

10 A lot of people in the advertising industry tend to misuse the

11 term "anonymous data."

12 Q. Flo and Meta have both claimed that this information was

13 deidentified or anonymous because of its use of an advertising

14 identifier.

15   Do you agree with that?

16 A. That's absolutely false. I mean, again, the definition of

17 deidentified data is that it's reasonably unlikely that someone

18 will ever be reidentified. But this data specifically is being

19 collected for the purpose of identifying people.

20   And so definitionally, this cannot be deidentified data.

21 That means definitionally, it's personally identifiable data.

22 Q. There have also been claims made by defendants that this

23 data was aggregated.

24   Did you observe any evidence that this data was

25 transmitted or recorded in an aggregate format?

1 A.   No, absolutely not.

2 Q.   How was this recorded?

3 A.   Each individual user of the data would get sent while

4 they're interacting with the app on an individual basis.

5 Q.   Does it matter for identifiability purposes if information

6 contains a name, e-mail address, or birthday?

7 A.   No. I mean, for the purpose of this data, they just want

8 to be able to identify your Facebook profile. They just need

9 an identifier to then link that to you, and the advertising ID

10 is one such identifier they use for that purpose. They don't

11 need your name.

12 Q.   Can data be identifiable if it doesn't have a name, e-mail

13 address, or birthday?

14 A.   Absolutely. So I think everyone would agree that your

15 social security number is personally identifiable information.

16 That doesn't have your name in it, but the defense would like

17 you to believe that that's anonymous data just because it

18 doesn't have your name in it, and that's ridiculous.

19 Q.   Is removing someone's name or e-mail address or birthday

20 from information a sufficient way to deidentify it?

21 A.   No. No, and there's lots of publicly available guidance

22 on this. I mean, they could have hired a privacy expert to

23 explain it to them.

24 Q.   Going back to the advertising ID a little bit.

25   Is it possible to still identify a user if they used two

1 different devices? For example, they used the Flo app on one

2 device but they may have used Facebook on another device?

3 **A.**   Yeah. They call that cross-device tracking. And so they

4 try and collect enough data so they can identify you across

5 devices. So, you know, you might be doing something on your

6 phone and then get targeted ads on your smart TV or on your

7 desktop computer, and that's because they use the data they

8 collect to identify all the devices that you have so that they

9 can serve ads to you regardless of which device you happen to

10 be using.

11 **Q.**   I'd like to switch --

12   **THE COURT:** Before we do that.

13   Getting back to aggregated data, you said no, absolutely

14 not; in your view, you have not seen any evidence that it was

15 transmitted in aggregated form.

16   Can you say a little bit more about it? What evidence

17 would have indicated to you that you didn't see, and how did

18 you come to that conclusion?

19   **THE WITNESS:** I don't know how they're defining

20 "aggregated data," but when a user individually enters stuff

21 into the app, those individual responses are sent to Meta and

22 other third parties.

23   **THE COURT:** Okay. So is it your view that that was --

24 for example, all those individual responses weren't just

25 lumped -- lump -- I'm going to use noncomputer science --

1   THE WITNESS: Yeah, yeah.

2   THE COURT: -- weren't lumped into a single bucket and

3 kind of got mixed around and sent over that way?

4   THE WITNESS: No, that was absolutely not occurring.

5   THE COURT: All right. Go ahead.

6   MR. LEVIS: I'd like to switch the screens so we can

7 show Dr. Egelman a document and not the jury.

8 BY MR. LEVIS:

9 Q.   Did you review any other documents or evidence in the

10 course of your analysis that confirmed whether Meta linked

11 information it received --

12   MR. CLUBOK: Excuse me. May I have a copy, please?

13   MR. LEVIS: Sure. It's...

14   (Counsel conferring.)

15   MR. LEVIS: I can put it up on the screen. It's

16 226 A.

17   MR. CLUBOK: That's fine. Thank you.

18 BY MR. LEVIS:

19 Q.   226 A4, please. So this is, I think, the cover page to

20 this document.

21   THE COURTROOM DEPUTY: Is this in evidence?

22   MR. LEVIS: Not yet.

23   THE COURTROOM DEPUTY: Okay.

24 BY MR. LEVIS:

25 Q.   Do you recognize this?

1 **A.** Yeah. It's one of the documents shared during discovery.

2 **Q.** And what is this?

3 **A.** Interrogatories where plaintiffs sent questions and

4 defendants, you know, were supposed to respond under oath.

5 **THE COURT:** What number is this?

6 **MR. LEVIS:** This is Exhibit 226 A4 is the redacted

7 copy on the screen. 226 are the interrogatories.

8 **THE COURT:** I don't have that.

9 **MR. LEVIS:** Oh.

10 **THE COURT:** Can you hand that to me?

11 Is there any objection to 226?

12 **MR. CLUBOK:** No, Your Honor.

13 **THE COURT:** Okay. 226 is admitted.

14 But hand me a copy, please.

15 (Trial Exhibit 226 A4 received in evidence.)

16 **MR. LEVIS:** Yes.

17 **MR. CLUBOK:** Your Honor, to be clear, we had agreed

18 and stipulated that an excerpt from 226 would be admitted into

19 evidence as reflected on Slide 31 of --

20 **THE COURT:** Okay. There was no objection, so we're

21 good. Just hand me a copy. That's all I'm asking.

22 **MR. CLUBOK:** I just --

23 **THE COURT:** I don't need to hear any more. Thank you.

24 Okay. Go ahead.

25 **MR. LEVIS:** Switch back to the --

1   (Counsel conferring.)

2   **BY MR. LEVIS:**

3   **Q.**   Okay, Dr. Egelman. Do you see this on the screen in front

4   of you?

5   **A.**   I do.

6   **Q.**   And can you read for us what this says?

7   **A.**   Yeah. (as read):

8   "When the Flo app sent app events data to Meta,

9   it also sent Meta information corresponding to the

10   app events for the sole purpose of matching the

11   individuals associated with the Flo app's app events

12   data to individual Facebook users. Information the

13   Flo app may have sent to Meta via the SDK for

14   matching purposes were app device identifiers, an

15   Android advertiser ID or an Apple ID for advertisers

16   or Facebook user ID, and hashed contact

17   information -- e-mail, first name, last name, phone

18   number, an external ID or unique ID, birth date,

19   city, state or province, ZIP or postal code, country,

20   or gender. During the relevant time period, Meta

21   solely used this information to match the individuals

22   in the Flo app's data to individual Facebook user

23   IDs. Meta could not match non-Facebook users. After

24   the matching process was complete, Meta promptly

25   discarded the hashed contact information it received,

1   whether matched or not, typically within 48 hours.

2   The identify of matched users was not revealed to

3   Flo Health or any third party."

4 Q.   And this came from a response that Meta produced in this

5 case; correct?

6 A.   Yes.

7 Q.   So based on what we just reviewed, have you come to an

8 opinion based on a reasonable degree of scientific certainty as

9 to whether the information that Meta received from the Flo app

10 was individually identifiable?

11 A.   Yeah, it absolutely was. And I didn't need this document

12 because I'm well familiar with what Facebook does with the

13 data.

14   MR. LEVIS: Nothing further.

15   THE COURT: Okay. You all set? We usually take a

16 little break until about 11:15, 11:30. Everybody good? Jury?

17 Okay, good.

18   Okay. Pass the witness.

19   CROSS-EXAMINATION

20 BY MR. SADUN:

21 Q.   Good morning, Dr. Egelman. It's nice to see you again.

22 A.   Good morning.

23 Q.   As a reminder, my name is Benjamin Sadun, and I represent

24 Flo.

25   You were deposed twice in this matter; correct?

1   **A.**   I was.

2   **Q.**   Once on August 4, 2023, and again on August 7, 2024;

3   correct?

4   **A.**   I don't remember the exact dates off the top of my head,

5   but I will stipulate to that.

6   **Q.**   Approximately.

7   And both times you were under oath; correct?

8   **A.**   Correct.

9   **Q.**   My colleague Ali Ozurovich handed you a binder of

10 materials. Do you have that in front of you?

11 **A.**   I do.

12 **Q.**   Please confirm you have both transcripts in your binder.

13 **A.**   Can I put this one to the side here.

14   (Pause in proceedings.)

15 **BY MR. SADUN:**

16 **Q.**   They're labeled by date.

17 **A.**   I see.

18 **Q.**   You submitted two affirmative reports and two rebuttal

19 reports in this case; yes?

20 **A.**   Yes.

21 **Q.**   Please confirm those are in the binder as well.

22 **A.**   Yup, they appear to be.

23 **Q.**   And those reports specify all your opinions and all your

24 bases for your opinions; correct?

25 **A.**   Wait. Hang on a second, actually.

1   Q.   It's there.   I promise.

2   A.   No, there's the report from the -- there's the report from

3   2023, the rebuttal from 2023, the report from 2024, but not

4   the -- oh, sorry.   It was behind one of the tabs.   Got it.

5   Q.   And my follow-up question was: Those reports specify all

6   of your opinions and your bases for those opinions; correct?

7   A.   Yes.

8   Q.   Please set the binder to the side and we'll use it as

9   needed.

10   Dr. Egelman, I have a copy of yesterday's transcript, and

11   when asked, "How did you get involved in this case?"   You

12   stated under oath, "Plaintiffs reached out to me."

13   But you weren't actually approached by plaintiff Erica

14   Frasco, plaintiff Sarah Wellman, or the others; it was

15   plaintiffs' lawyers from the Labaton firm, not the plaintiffs

16   themselves, that reached out to you; correct?

17   A.   Yes.   I thought that was understood by my response.   I

18   apologize if there was confusion.

19   Q.   Dr. Egelman, you've been hired and paid by the same firm

20   representing plaintiffs in this case in other cases; correct?

21   A.   There's several firms and many regulators that come to me

22   for privacy advice, yes.

23   Q.   I'll repeat my question.

24   You've been hired and paid by the same firm representing

25   plaintiffs in this case in other cases?

1 **A.**   Yes, I have done work for them before.

2 **Q.**   At counsel's table there are three firms. I'm going to

3 focus just on the one for the moment, the Labaton firm.

4   As of August 2023, when you were first deposed in this

5 case, including both testifying and consulting experience, you

6 had already been retained by the Labaton firm -- just the

7 Labaton firm -- probably more than five times; true?

8 **A.**   Maybe. Yeah, that's -- sure, probably.

9 **Q.**   And it's your expectation to be paid in every such

10 representation by Labaton; yes?

11 **A.**   Every such representation -- yeah, representation, sure.

12 But, I mean, I often give them and other firms free stuff that

13 I think they should pursue.

14 **Q.**   After this case, you would not be surprised to receive an

15 e-mail or phone call from the lawyers at Labaton asking you to

16 serve as an expert in their cases again; true?

17 **A.**   I have no expectations. I don't advertise my services.

18 They just come to me.

19 **Q.**   Sir, you were deposed under oath on August 4th, 2023?

20 **A.**   Uh-uh.

21 **Q.**   Please turn to page 284, lines 12 through 16 of that

22 deposition.

23   **THE COURT:** Do I have that?

24   **MR. SADUN:** You do, Your Honor. It's marked by date

25 of the deposition, August 4, 2023.

1   THE COURT: Where is the transcript?

2   MR. SADUN: It should be in that binder under a

3   tab stating "Transcript August 4, 2023."

4   THE WITNESS: Which page?

5   MR. SADUN: It would be page 284, lines 12 through 16.

6   THE COURT: 284?

7   MR. SADUN: Yes, Your Honor.

8   THE COURT: Just a moment. Don't answer that for a

9   moment, Doctor.

10   284, lines what?

11   MR. SADUN: 284, lines 12 through 16.

12   THE COURT: Okay.

13   THE WITNESS: I mean, the lines immediately --

14   MR. SADUN: Dr. Egelman, there's no question pending.

15   THE COURT: I'm asking for clarification. Just relax.

16   Okay?

17   MR. SADUN: Okay.

18   THE COURT: Help the witness. That's what you're here

19   to do.

20   MR. SADUN: I am here to do that.

21   THE COURT: You see the little pages --

22   THE WITNESS: Oh, yeah.

23   THE COURT: So lines 12 to 16, he's going to read them

24   to you.

25   THE WITNESS: Sure.

1   THE COURT: All right. Go ahead.

2   MR. SADUN: Actually, Jody, would you kindly play clip

3   SE284.

4   (Video played but not reported.)

5   BY MR. SADUN:

6   Q.   That was your testimony under oath; correct?

7   A.   The prior question says exactly what I just told you now,

8   that I have no expectations either way. I don't tell them what

9   cases to bring. They just come to me when they have privacy

10   needs.

11   Q.   No expectations either way is very different than "No, it

12   would not surprise me," full stop, which was your answer under

13   oath in your deposition.

14   Those were your words; correct?

15   A.   We've gone over the full set of words, yes.

16   Q.   In 2012, you served as an expert witness for the

17   plaintiffs in the Netflix privacy litigation; correct?

18   A.   Yes.

19   Q.   The next year, in 2013, you served as an expert witness

20   again for plaintiffs, this time in the LinkedIn user

21   litigation; correct?

22   A.   Yup.

23   Q.   The following year, in 2014, you again served as an expert

24   witness for plaintiffs in *Levy versus Universal Parking of*

25   *Florida*; correct?

1 A. Yes.

2 Q. That same year, you also served as an expert witness for

3 plaintiffs in *Doe v. Twitter, Inc.*; correct?

4 A. Yup.

5 Q. And from 2017 to 2019, you again served as an expert

6 witness for plaintiffs in the Vizio, Inc. consumer privacy

7 litigation; correct?

8 A. Yup.

9 Q. And in 2022, you again served as an expert witness for

10 plaintiffs in *Hart, et al. v. TWC Product and Technology*;

11 correct?

12 A. Yup.

13 Q. And in 2024, just last year, you served as an expert for

14 plaintiffs in *Clark, et al. v. Yodlee*; correct?

15 A. Yes.

16 Q. I only have your records from 2023, but just looking at

17 that year, payments from plaintiff firms collectively made up

18 more than 30 percent of your income; correct?

19 A. I don't have those records in front of me.

20 Q. Please turn to page 782 through 783, lines 24 through 3,

21 of your August 7, 2024, transcript.

22 A. Sorry --

23 Q. August 7, 2024, pages 782, lines 24, through 783, line 3.

24   THE COURT: Don't say anything yet. I've got to look

25 at it first, Doctor.

1   What lines are those?

2   MR. SADUN: 782/24 through 783/3.

3   THE COURT: Okay. That's fine.

4   MR. SADUN: Jody, would you please play the clip.

5   (Video played but not reported.)

6   BY MR. SADUN:

7   Q.   You were asked that question and you gave that answer,

8   "Certainly more than 30 percent"; correct?

9   A.   Yeah. You're asking me about my taxes a year and a half

10   ago, so yes, forgive me if I don't remember the exact

11   percentage.

12   Q.   During your direct exam you talked about your company,

13   AppCensus.

14   AppCensus' software is regularly licensed by plaintiff

15   counsels for plaintiff litigation; correct?

16   A.   Most of our business comes from enterprise customers who

17   want to fix their privacy compliance so they don't end up here.

18   MR. SADUN: Your Honor, please turn to August 4, 2023,

19   transcript, page 271, lines 2 through 4.

20   THE COURT: That's fine.

21   MR. SADUN: I'm sorry, Your Honor.

22   THE COURT: That's fine.

23   MR. SADUN: Yes. Thank you, Jody.

24   (Video played but not reported.)

25   \\\

1 BY MR. SADUN:

2 Q.   "That is correct" was your testimony under oath?

3 A.   That question was "regularly." I don't believe you said

4 "regularly." You said "primarily."

5   Plaintiffs' firms are not our primary customers.

6 Q.   I'm careful with my words. I said "regularly," but

7 it's -- I understand your testimony now. Let's just move

8 forward.

9   As of August 2023, when you were deposed, you personally

10 had never used, not even once, AppCensus to serve as an expert

11 for defendants; correct?

12 A.   Sorry. When?

13 Q.   When you were deposed in August 2023, you had personally

14 never used AppCensus to serve as an expert for defendants;

15 correct?

16 A.   Yes, because that work gets split up for conflict of

17 interest purposes. I am completely walled off for when the

18 company does stuff on the defense side or for enterprise

19 compliance.

20   So yes, that's why I primarily handle when regulators come

21 to us for data as well as consumer protection attorneys. I do

22 that, about half of it.

23   MR. SADUN: Your Honor, move to strike everything

24 after "yes." I didn't ask him --

25   THE COURT: It's denied. Next question. Let's keep

1   it moving.

2   **BY MR. SADUN:**

3   **Q.**   Changing subjects, Dr. Egelman, let's talk about your

4   personal experience using the Facebook Analytics SDK.

5   You've testified at length about Facebook Analytics, but

6   as of 2023, when deposed, you had no specific recollection of

7   having personally programmed an application to use the Facebook

8   Analytics SDK; correct?

9   **A.**   I'd have to see the transcript. I mean, I don't recall in

10   2023 whether I would have used it or not. I've certainly

11   reverse-engineered it and tested hundreds of thousands of apps

12   that contain its code, but I think --

13   My recollection is that you had asked whether I had

14   personally developed an app that included the

15   Facebook Analytics SDK, and the answer to that would have

16   almost certainly been no.

17   **MR. SADUN:** That was not my question, Your Honor.

18   August 4, 2023, deposition transcript, page 293, lines 19

19   through 13.

20   **THE COURT:** Well, okay.

21   **THE WITNESS:** Which page?

22   **THE COURT:** You're going to see it in just a second.

23   Go ahead.

24   **MR. SADUN:** Jody.

25   (Video played but not reported.)

1 BY MR. SADUN:

2 Q.   "I have no specific recollection" was your testimony under

3 oath. Yes or no?

4 A.   I think that's what I just said, yes.

5 Q.   But it's not just the Facebook Analytics SDK, Dr. Egelman.

6 As of the time of your deposition, as far as you could recall,

7 at no point in time had you ever personally programmed any

8 mobile application to use any analytics SDK; correct?

9 A.   In 2023? I honestly don't remember, but I'm sure you're

10 going to remind me what I said then.

11 Q.   I can save you the time and burden of a video clip.

12   Can we agree, as of the time you were deposed, you had no

13 personal experience programming a mobile application to use the

14 analytics SDK?

15 A.   That's probably accurate.

16 Q.   During your direct, you spoke about privacy. But you're

17 not the data protection officer at AppCensus, your company, are

18 you?

19 A.   Well, since AppCensus doesn't collect personal data under

20 relevant laws, we're not required to have a data protection

21 officer, because I don't know what they would protect because

22 there's no personal data. The only personal data that

23 AppCensus gets is when someone, usually a chief privacy officer

24 or general counsel at a corporation, signs a contract for us to

25 do app testing for them.

1 Q.   Dr. Egelman, the URL to AppCensus' website is

2 appcensus.io; correct?

3 A.   That's correct.

4 Q.   When I Google AppCensus, the AppCensus website is the

5 first result; correct?

6 A.   I'll take your word for it.

7 Q.   And anyone from the public, not just me, can go to your

8 website; yes?

9 A.   Yes.

10 Q.   So by definition, members of the public have access to and

11 can visit your website, and your website is then recording that

12 information?

13 A.   We don't -- we don't collect any log data from the

14 website.

15 Q.   Are you telling the Court under oath that you have no --

16   THE COURT: Not me. The jury.

17   Go ahead.

18 BY MR. SADUN:

19 Q.   Is it your testimony under oath that presently -- because

20 I did check this morning using Ghostery -- a tool I imagine

21 you're familiar with --

22   MR. LEVIS: Objection.

23 BY MR. SADUN:

24 Q.   -- there are no analytics tools running on your website?

25   MR. LEVIS: Objection.

1   **THE WITNESS:** I'm not --

2   **THE COURT:** Hold on one second. When the word

3   "objection" comes out, you just have to stop.

4   What's the rule?

5   **MR. LEVIS:** First of all, relevance as to --

6   **THE COURT:** That's okay. Go ahead. Let's not spend a

7   huge amount of time on this.

8   **MR. SADUN:** Of course, Your Honor. I'd appreciate the

9   answer.

10   **THE COURT:** Just answer the question.

11   **THE WITNESS:** I honestly -- they shouldn't be. We had

12   a -- I don't know -- a contractor several years ago that put

13   one on there. Then we fired them and removed it.

14   I've been -- I've had no involvement in the website or any

15   part of the website in several years.

16   So if there are analytics, third-party ones, running on

17   there that are collecting personal information, I would love to

18   know that because I would have conversations with folks,

19   because there shouldn't be.

20   BY MR. SADUN:

21   Q.   Okay. I'd encourage you to do that check.

22   Will you agree with me right now, to save everyone time,

23   that you cannot deny the possibility of analytics on your own

24   website?

25   **MR. LEVIS:** Objection. Speculation.

1   **THE COURT:** That's sustained.

2   Next question.

3   **BY MR. SADUN:**

4   **Q.**   You're not alleging that Flo violated any laws; correct?

5   **A.**   Sorry. What?

6   **Q.**   You --

7   **THE COURT:** He's not a lawyer. Don't ask that

8   question. Go on to something in his area of qualification as

9   an expert.

10   **BY MR. SADUN:**

11   **Q.**   The five plaintiffs were all deposed, meaning for

12   approximately seven hours, each testified under oath, and

13   there's a written transcript for each of their depositions in

14   the record of what they said.

15   But you did not read the depositions of any of the named

16   plaintiffs, did you?

17   **A.**   I don't recall doing so, no.

18   **Q.**   As far as you're aware, plaintiffs' counsel did not even

19   provide you with the named plaintiffs' depositions; correct?

20   **A.**   I -- I don't know. I don't think they did, but I also

21   don't see how they would have been relevant for why I was

22   hired.

23   **Q.**   To your knowledge, you're not aware of plaintiffs' counsel

24   having provided you the deposition transcripts of the actual

25   plaintiffs in this case; correct?

1 **A.**   Yeah, I think I just said that.

2 **Q.**   Each plaintiff was also asked questions in writing and

3 submitted something called an interrogatory?

4   **MR. LEVIS:** Objection. Counsel is testifying.

5   **THE COURT:** One second.

6   Just say it again. What's the question?

7 **BY MR. SADUN:**

8 **Q.**   Plaintiffs' counsel, to the best of your recollection, did

9 not provide you with plaintiffs' interrogatory responses;

10 correct?

11 **A.**   To the best of my knowledge, no.

12 **Q.**   Flo also submitted written interrogatory responses to

13 questions. You have no memory of having reviewed Flo's

14 interrogatory responses; correct?

15 **A.**   No. I would have -- I wouldn't have needed to.

16 **Q.**   Flo's chief technology officer, so someone in your lane,

17 was deposed for seven hours. You've not reviewed and are not

18 relying upon his deposition testimony, are you?

19 **A.**   I think I reviewed it, but I think it was not reliable.

20 **Q.**   You are not relying upon the deposition testimony of Roman

21 Bugaev, the chief technology officer of Flo; correct?

22 **A.**   I definitely reviewed it, but no, I am not relying on it,

23 no.

24 **Q.**   You're also not relying upon the deposition testimony of

25 Flo's corporate representative; correct?

1   **A.**   No. For my role, I wouldn't rely on anything that Flo

2   provides.

3   **Q.**   Thank you for that honesty.

4   Let's switch gears and talk about --

5   **THE COURT:** And let's not have any more comments like

6   that. You don't thank the witness for anything. Just do your

7   job and ask the questions.

8   **BY MR. SADUN:**

9   **Q.**   Let's switch gears and talk about how common of a practice

10   it is to use software development kits.

11   Your app, AppCensus, uses various third-party components

12   in its tool chain; correct?

13   **A.**   We don't make an app.

14   **Q.**   You were deposed on August 4th, 2023?

15   **A.**   Mm-hmm.

16   **MR. SADUN:** Your Honor, page 289, lines 23 through 25.

17   **THE COURT:** Hold on.

18   **THE WITNESS:** 283, you said?

19   **MR. LEVIS:** Objection. Improper impeachment.

20   **THE COURT:** Just hang on, everyone.

21   289? Fine. Go ahead.

22   **MR. SADUN:** Jody.

23   (Video played but not reported.)

24   **THE WITNESS:** We don't make apps. You asked does our

25   app. There's no app that AppCensus makes available.

1   BY MR. SADUN:

2   Q.   There was no question pending, but I appreciate your

3   response.

4   AppCensus uses libraries of code written by others and

5   incorporates them into your software; correct?

6   A.   Yeah. I already testified on direct that using

7   third-party components is an accepted practice in engineering.

8   We're not here because of the use of -- well, we're here

9   because of the use of third-party components, that it was done

10   irresponsibly and in a way that violated people's privacy. But

11   just because they used third-party components, that's not the

12   issue. It's using them irresponsibly was the issue?

13   Q.   Dr. Egelman, I have your transcript from you from

14   yesterday. You didn't just say it's an accepted engineering

15   practice. You said, "It's considered a good practice."

16   That was your testimony yesterday; correct?

17   A.   I -- I'm not contradicting that.

18   Q.   And you agree, as I think you just alluded, there are

19   times when using an SDK is the more prudent choice as opposed

20   to creating code from scratch?

21   A.   Yeah, that's absolutely true. And, again, it needs to be

22   done responsibly.

23   Q.   Yesterday you also testified to having reviewed hundreds

24   of thousands of mobile applications. By your estimation, more

25   than 99 percent of mobile applications probably use SDKs;

1   correct?

2   **A.**   Yep.   That's absolutely true.

3   **Q.**   In fact, most mobile applications use multiple SDKs;

4   correct?

5   **A.**   Again, we're not here because SDKs were used.   We're here

6   because SDKs were used to take people's personally identifiable

7   health information without their consent.

8   **Q.**   Sir, you're not the plaintiffs.   You're not a lawyer.

9   You're not here to say why we're here.   But I appreciate you

10   have a strong view as to Flo's use of the SDKs.

11   Question for you is: Probably 50 percent of the most

12   popular mobile applications that you've looked at use some

13   analytics SDK; correct?

14   **A.**   That's probably true.

15   **Q.**   Let's discuss the apps on your personal phone.

16   You have an iPhone; correct?

17   **A.**   I do.

18   **Q.**   At the time of your deposition, you had approximately 188

19   separate apps installed on your phone; correct?

20   **A.**   That seems high, but --

21   **Q.**   We counted them together, Dr. Egelman.

22   **A.**   Okay.   I will take your word for it.

23   **Q.**   You presume that most, if not all, of the 188 mobile

24   applications on your iPhone have SDKs?

25   **A.**   That's true.

1 Q.   And you admitted at your deposition that you do not know

2 which apps on your phone share information with analytics

3 companies; true?

4 A.   That's true, but I also take precautions on my phone which

5 most people don't know to take.

6 Q.   You testified you could have tested it -- and I say this

7 because you say you can take precautions -- you could have

8 tested it, but you simply haven't; correct?

9 A.   Tested what? All 188 I'm that currently using?

10 Q.   You could have tested the mobile applications on your

11 personal device that you use to see what information, if any,

12 is being shared with analytics companies; correct?

13 A.   I mean, I -- I do on some apps, yes.

14 Q.   Right now, under oath, my question for you is: You could

15 have tested it but simply haven't, those 188 mobile apps?

16 A.   I test apps. If it's an unfamiliar app that's soliciting

17 sensitive information, then I will test it. I don't test every

18 single app that I download on my device if they don't.

19 Q.   Please turn to page -- I'm sorry -- 305 of your August 4,

20 2023, deposition transcript. Page 305, lines 13 through 14.

21   THE COURT: Oh. Okay.

22   MR. SADUN: Jody.

23   (Video played but not reported.)

24   THE WITNESS: Test what? That's missing some context.

25 \\\

1   BY MR. SADUN:

2   Q.   You had the question at your deposition, and you answered

3   it, "That's correct"?

4   A.   That's a different question.

5   MR. LEVIS: Objection.   Improper impeachment.

6   THE COURT: Can we maybe do something else?

7   MR. SADUN: I have only a few more questions on this

8   module, Your Honor.

9   THE COURT: Please.   One at a time, and I get to go

10 first.

11   Can we just do something else?   Is there more on this?

12 How about something, you know, next?

13   MR. SADUN: Sorry.   Understood, Your Honor.

14   THE COURT: All right.

15 BY MR. SADUN:

16 Q.   Lets talk about how you conducted your testing for your

17 opinions in this case.

18   You disassembled the Flo app; correct?

19   THE COURT: Take down that screenshot.

20   Okay.   Go ahead.   Why don't you repeat it.

21   MR. SADUN: No, I appreciate that, Your Honor.   I

22 didn't intend for that to stay up.

23   THE COURT: I understand.

24 BY MR. SADUN:

25 Q.   You disassembled the Flo app; correct?

1   **A.**   I did.

2   **Q.**   That means you converted the machine learning code to

3   assembly code; correct?

4   **A.**   Yup.

5   **Q.**   And you converted it to Java as well?

6   **A.**   Yes.

7   **Q.**   And you also decompiled the Flo app; correct?

8   **A.**   Yes.

9   **Q.**   Which means you converted the byte code into the original

10   programming language; correct?

11   **A.**   There's an asterisk there, but, yes, close to the original

12   programming language, yeah.

13   **Q.**   I can play the video. Will you agree with me --

14   **A.**   Yes, more or less it is the same instructions, so you lose

15   some things like variable names sometimes. When you decompile,

16   then you have to infer what variable names -- what the

17   variables were named. Comments don't appear. So it's not

18   exactly the same code, but the instructions are the same.

19   **Q.**   In short, let's just make it simple.

20   You reverse-engineered the Flo app?

21   **A.**   Yeah. I already testified to that.

22   **Q.**   You did not consult Flo's terms of use when you decompiled

23   the Flo app; correct?

24   **A.**   None were presented to me when I downloaded and installed

25   the app.

1   Q.   When you say none were presented to you, you're referring

2   to plaintiffs' counsel or are you suggesting that Flo's terms

3   of use are not available on the app, on its website, on the

4   consent screen when you first load it when you conducted your

5   testing in 2022?

6   MR. LEVIS: Objection. Compound.

7   THE WITNESS: We saw screenshots --

8   THE COURT: Hold on. I have to say overruled.

9   Now you can answer. Go ahead.

10   THE WITNESS: We saw screenshots of the first screen

11   where no such link was present to any terms of service or

12   privacy policy.

13   BY MR. SADUN:

14   Q.   Dr. Egelman, I'm not asking you about screenshots of old

15   code. I'm asking you specifically about your own testing later

16   in time, years after the class period in 2022.

17   Flo has on its website terms of use; correct?

18   A.   I'll take your word for it.

19   Q.   You don't have to take my word for it, Dr. Egelman. I

20   asked you about them in your deposition.

21   A.   Right, but the point is when downloading and installing

22   the app, no user would ever encounter Flo's website.

23   Q.   You did not consult Flo's terms of use when you decompiled

24   the Flo app; correct?

25   A.   No. I saw no need to.

1   Q.   You did not consult Flo's terms of use when you

2   reverse-engineered the Flo app; correct?

3   A.   Nope.

4   Q.   Dr. Egelman, in your binder, please turn to

5   Trial Exhibit 198 in your binder. These are Flo's terms of

6   service.

7   MR. SADUN: If no objection, I move Trial Exhibit 198

8   in evidence and seek permission to publish.

9   THE COURT: Okay. Any objection?

10   MR. LEVIS: Hold on. Which tab is this again?

11   MR. SADUN: 198.

12   THE COURT: Objection?

13   I thought this was already in.

14   MR. SADUN: I believe a slightly different version,

15   Your Honor.

16   THE COURT: All right. Okay. Objection?

17   MR. LEVIS: Objection. And it's not clear that --

18   THE COURT: Overruled. It's admitted. Go ahead.

19   (Trial Exhibit 198 received in evidence.)

20   THE WITNESS: 198, what line?

21   MR. SADUN: Jody if you would kindly pull it up.

22   BY MR. SADUN:

23   Q.   These are the terms of service I showed you at your

24   deposition. I'd like you to look at page 2, either on the

25   screen or in the binder in front of you.

1   Looking midway through the page to Section 4, it states

2   (as read):

3   "Your use of the app."

4   Did I read that correctly?

5   A.   You did.

6   Q.   And in the last sentence of that paragraph, Flo's terms of

7   service reads (as read):

8   "You agree that if you take any of the following

9   actions, you will be materially breaching this

10   agreement and you agree that you shall not."

11   Did I read that correctly?

12   A.   You did.

13   Q.   And next to letter B, it states (as read):

14   "Modify, reverse-engineer, decompile or

15   disassemble the app."

16   Did I read that correctly?

17   A.   You did.

18   Q.   Flo's terms of use prohibit people from

19   reverse-engineering the Flo app; correct?

20   A.   They say that. Yes.

21   Q.   In fact, according to Flo's terms of use,

22   reverse-engineering the app is a material breach of Flo's

23   terms? That's the language that you just read; correct?

24   A.   Yes, that's what that says.

25   Q.   Flo's terms of use prohibit people from disassembling the

1 app; correct?

2 A.   That's what it says.

3 Q.   And according to Flo's terms of use, disassembling the

4 app -- again, it refers to it as a material breach of Flo's

5 terms?

6   And to go faster, it also prohibits decompiling; correct?

7 A.   That's what it says.

8 Q.   And as far as you can recall, you did not ask permission

9 of Flo to reverse-engineer the Flo app; correct?

10 A.   I didn't need to, no.

11 Q.   As far as you're aware, Flo never gave you permission to

12 reverse-engineer the app?

13 A.   I didn't need to ask for it.

14   MR. SADUN: Your Honor, August 4, 2023 --

15   THE COURT: You know, we need to kind of get into

16 something substantive, so how much more do you have on this

17 line?

18   MR. SADUN: I probably have a total of 15 more minutes

19 in my cross in totality, Your Honor.

20   THE COURT: Entirely?

21   MR. SADUN: I think if he -- yes, I'm confident we can

22 get this done in 15 minutes if the Court will allow.

23   THE COURT: All right. What line, what page?

24   MR. SADUN: Would you kindly read back the last

25 question so I can find it myself.

1   (The record was read.)

2   MR. SADUN: I appreciate it.

3   August 4, 2023, page 213, Your Honor, lines 3 through 6.

4   THE COURT: Well, I think he just -- didn't he just

5 say that?

6   Oh, go ahead. That's fine.

7   MR. SADUN: Jody. Thank you.

8   (Video played but not reported.)

9 BY MR. SADUN:

10 Q.   Those were your words under oath?

11 A.   Yep.

12 Q.   And you didn't ask permission -- strike that.

13   Now, you certainly have seen apps that prohibit

14 reverse-engineering; correct?

15 A.   Yeah, absolutely.

16 Q.   Dr. Egelman, please turns to Trial Exhibit 537 in your

17 binder.

18   MR. SADUN: Your Honor, neither plaintiffs nor Meta

19 lodged an objection to this one. I'd like to move it into

20 evidence.

21   MR. LEVIS: No objection.

22 BY MR. SADUN:

23 Q.   At the top on the left, it says AppCensus --

24   THE COURT: Hold on. What's the exhibit number.

25   MR. SADUN: 537. No party on the exhibit list lodged

1   an objection.

2   THE COURT: Is there any -- no objection?

3   MR. LEVIS: No objection.

4   THE COURT: Okay. It's admitted.

5   (Trial Exhibit 537 received in evidence.)

6   BY MR. SADUN:

7   Q.   On the top on the left, it says AppCensus, and it has

8   AppCensus' logo, that circle there; correct?

9   A.   It does.

10   Q.   And at the top, it says "Terms of service."

11   Did I read that correctly?

12   A.   You did.

13   Q.   We're looking at the terms of service from your company's

14   website; correct?

15   A.   I assume so. I didn't write this document. One of our

16   lawyers did.

17   Q.   Halfway down the page, still on page 1, under "Use of the

18   Site," the second paragraph of the AppCensus terms of service

19   state (as read):

20   "You may not reproduce, distribute, display,

21   sell, lease, transmit, create derivative works from,

22   translate, modify, reverse-engineer, disassemble,

23   decompile, or otherwise exploit this site or any

24   portion of it unless expressly permitted by AppCensus

25   in writing."

1   Did I read that correctly?

2 **A.**   Yeah. As I told you at deposition, our lawyers wrote

3 this. There's nothing to reverse-engineer on the website, and

4 if someone did, we probably wouldn't care.

5 **Q.**   These terms specifically prohibit reverse-engineering;

6 correct?

7 **A.**   That's what it says, but, again, I think this was

8 boilerplate, and there's nothing really to even

9 reverse-engineer, and we wouldn't care if anyone did.

10 **Q.**   These terms also say you may not disassemble or decompile.

11 Those are the words --

12 **A.**   Yeah.

13 **Q.**   -- on your company's website?

14 **A.**   Yeah, but I didn't write this, and I think it's -- I

15 personally think it's silly. Our lawyers think we need it, but

16 I think it's silly.

17 **Q.**   Dr. Egelman, you own 30 percent of AppCensus; correct?

18 **A.**   Mm-hmm.

19   **THE COURT:** You actually have to use words.

20   **THE WITNESS:** Yes.

21   **THE COURT:** Thank you.

22 **BY MR. SADUN:**

23 **Q.**   And as we've agreed, you reverse-engineered the Flo app;

24 yes?

25 **A.**   Yeah. Reverse engineering is a very common practice

1   within computer security. I mean, even Meta employs

2   reverse-engineers.

3   THE COURT: Can I -- life will be better if you just

4   say "yes" or "no."

5   THE WITNESS: Yes, yes.

6   THE COURT: All right. Go ahead.

7   MR. SADUN: Thank you, Your Honor.

8   BY MR. SADUN:

9   Q.   You disassembled the Flo app, contrary to its terms;

10   correct?

11   A.   Correct, because -- yes.

12   Q.   Thank you, Dr. Egelman.

13   And you decompiled the Flo app as well?

14   A.   Absolutely.

15   Q.   Again, contrary to the terms?

16   A.   Absolutely.

17   Q.   I showed you these same terms from your company's website

18   during your deposition, but just -- sorry -- yeah, your

19   company's website --

20   THE COURT: Let's wait for a moment while your

21   colleague finishes her work.

22   (Pause in proceedings.)

23   THE COURT: Let's not have this happen again. I

24   discussed this with the parties many times before trial.

25   UNIDENTIFED SPEAKER: Yes, Your Honor. I apologize.

1   THE COURT: I'm sorry for the interruption in the

2   background.

3   Go ahead.

4   BY MR. SADUN:

5   Q.   I showed you this at your deposition. But just this

6   morning I went to your website, and AppCensus no longer has any

7   terms of service. You took it down sometime after your

8   deposition; correct?

9   A.   I honestly -- I have no involvement in the website. I

10   know that they had hired a marketing person to revamp the

11   website maybe a year ago, and I honestly -- I haven't visited

12   the website in probably a year.

13   So, yes, it would not surprise me if the website changed

14   in the past year because we hired someone to do it.

15   MR. SADUN: Apologies, Your Honor.

16   THE COURT: Okay. Don't break anything. It's new.

17   We just had it put in.

18   MR. SADUN: I promise I'll do my best. Can't promise

19   it won't actually break.

20   THE COURT: Just take a moment, recompile.

21   BY MR. SADUN:

22   Q.   So do you agree with me that AppCensus' terms of service

23   were taken down from the website after I pointed out that same

24   language we just read through at your deposition?

25   MR. LEVIS: Objection. Speculation.

1   **THE WITNESS:** It wasn't causal --

2   **THE COURT:** Hold on.

3   Overruled. Go ahead.

4   **THE WITNESS:** It wasn't causal, if that's what you're

5   trying to insinuate. We were -- we revamped the website and

6   I guess they removed them during that process, but it had

7   nothing to do with my prior deposition.

8   **BY MR. SADUN:**

9   **Q.**   My question only was: Do you agree it was taken down

10 after I asked you about it at your deposition?

11 **A.**   That is the correct chronology, yes.

12 **Q.**   And when taking down the AppCensus terms of service, you

13 didn't just modify it to remove the specific language

14 concerning decompiling, disassembling; you removed the entirety

15 of the website's terms of service; correct?

16 **A.**   As I already said, I have no idea. I haven't visited the

17 website in over a year. That's not my responsibility. I

18 don't -- I don't deal with the website at all. The website

19 only exists for people to, you know, submit inbound sales

20 inquiries, so I have very little to do with that part of the

21 business.

22   **MR. SADUN:** Your Honor, may I approach Dr. Egelman

23 with a demonstrative for purposes --

24   **THE COURT:** You can hand it to me first --

25   **MR. SADUN:** Of course.

1   THE COURT: -- and hand it to your colleague at the

2   plaintiffs' table.

3   What is it? A demonstrative?

4   MR. SADUN: This is the --

5   THE COURT: Is it a demonstrative only?

6   MR. SADUN: Yes, Your Honor.

7   THE COURT: Okay. That seems fine. Go ahead.

8   Do you have it on the screen so the jury can see it?

9   MR. SADUN: I would like to and hand one copy to the

10   witness.

11   THE COURT: Just put it up.

12   MR. SADUN: Jody.

13   BY MR. SADUN:

14   Q.   This is a printout of AppCensus' website from just last

15   night. If you look at the bottom left-hand corner of the

16   document, there's a URL there. Do you see that?

17   A.   Yeah. I don't know -- yes, there's a URL at the bottom,

18   sure.

19   Q.   That URL is to https:// --

20   THE COURT: Okay. This is not a demonstrative. This

21   is -- you're trying to use this for the content -- the truth of

22   the content.

23   So just ignore it. We're going to move on.

24   How much longer do you have?

25   That's stricken.

1   This will be one of rare occasions when I'm going to

2 actually tell you just please put this out of your mind. Don't

3 think about it. Cannot use it for any purpose in the case.

4   Okay. How much more do you have?

5   MR. SADUN: I expect around ten more minutes, Your

6 Honor.

7   THE COURT: Okay.

8 BY MR. SADUN:

9 Q.   Let's talk about device IDs.

10   It's not unusual for an application to collect device

11 identifiers; correct?

12 A.   No, that's not correct -- I mean, yes, that's correct.

13 It's not unusual.

14 Q.   It's not unusual for an application to transmit device

15 identifiers; correct?

16 A.   That's correct.

17 Q.   IDFAs are for iPhone. IDFAs do not differentiate between

18 users of the same device; correct?

19 A.   Can you explain what you mean?

20 Q.   I'm saying if multiple people are sharing an iPad, that

21 single static IDFA does not distinguish between those multiple

22 people of the same household.

23 A.   Sure. I mean, just like your phone number doesn't tell

24 you who the individual at the house is or your physical

25 address. There could be multiple people there, yes, if the

1   device is shared.

2   We've done lots of studies on smartphones that we know

3   that that doesn't really happen.

4   Q.   Simply put, IDFAs do not differentiate between users of

5   the same device; correct?

6   A.   That's correct.

7   Q.   The Android ID shared by the Flo app analytics providers

8   does not differentiate between users of the same device either;

9   correct?

10   A.   Correct, but everyone treats them as identifiers for

11   people because they know that the devices aren't shared.

12   Q.   I understand you treat them that way. My question only

13   was --

14   A.   Your codefendant --

15   **THE COURT:** Let him finish and then you'll have your

16   chance.

17   Go ahead.

18   **BY MR. SADUN:**

19   Q.   The Android ID shared by the Flo app, the analytics

20   providers does not itself differentiate between users of the

21   same device?

22   A.   What I was just going to say is like Facebook has

23   you know, pages where it tells they're marketing for business

24   customers to advertise at individuals, target people based on

25   their mobile ad IDs. They allow you to upload lists of mobile

1   ad IDs specifically to target individuals, which is their

2   terminology.

3   And so clearly industry treats these as unique per

4   individual, even though, yes, theoretically two people could

5   share a device.

6   Q.   You were deposed under oath on August 4, 2023. Would you

7   kindly look at page 366, lines 20 through 24.

8   MR. SADUN: Permission to impeach, Your Honor?

9   THE COURT: That's fine.

10   MR. SADUN: It would be 366B.

11   (Video played but not reported.)

12   THE WITNESS: Yeah, that's consistent with what I just

13   said.

14   BY MR. SADUN:

15   Q.   "No," full stop, was your answer under oath; correct?

16   A.   I think it's probably missing context because you're

17   selectively quoting, and had I had time to read the full

18   surrounding text that -- there would probably be more of what

19   I've just said today.

20   But, yes, it only identifies the device, but for all

21   intents and purposes, that's treated as an identifier for an

22   individual.

23   Q.   Dr. Egelman, your answer to that question was one word

24   when deposed; correct? It was "no"?

25   A.   Again, there's a lot of context there that you're leaving

1   out.

2   Q.   You're suggesting other questions. I'm asking you about

3   this question.

4   Under oath, when deposed, when asked "Does the Android

5   advertising ID that you allege was shared by the Flo app to

6   analytics providers differentiate between users of the same

7   device," your answer was "no"?

8   A.   Yeah, and it still is.

9   Q.   As you stated in your deposition, device identifiers can

10 be reset by users at any time; correct?

11 A.   I think there's a lot of nuance there. Most users -- I

12 mean, what do you mean by "can be reset at any time"? Most

13 users don't understand the functionality exists?

14   And there's -- you know, this is well studied. Again,

15 you know, about 1 percent of Android users do this, and at the

16 time it was around 10 percent of Apple users.

17   And that, you know, is in contrast to surveys of people.

18 When you ask about their privacy preferences they say they

19 would prefer their data not be collected in this way, and yet

20 they don't use these controls. Well, the obvious answer is

21 they don't know they exist and they don't know how to use them.

22   And there's been a lot of studies on usability to show

23 that a lot of this stuff is really hard to use, which is why

24 people often make decisions that seem to contradict their

25 stated privacy preference.

1   MR. SADUN: Your Honor, August 4, 2023, page 363,

2   lines 7 through 10.

3   THE COURT: That's fine.

4   (Video played but not reported.)

5   BY MR. SADUN:

6   Q.   Your answer when deposed was "yes"; correct?

7   A.   Again, you're cutting out a lot of context where we

8   discussed these same issues at the time.

9   But, yes. That very narrow question, the answer is yes.

10   Q.   Thank you.

11   On direct, I believe, in response to Your Honor's

12   questions, you spoke about device IDs being static even if

13   someone turns off their device.

14   Do you recall that?

15   A.   Yep. That's accurate.

16   Q.   This case concerns just 12 app events; correct?

17   A.   That's my understanding, yes.

18   Q.   And those 12 app events are only fired once during

19   registration, not again when a user may or may not use the app

20   again; correct?

21   A.   I've -- there are different event names that were sent

22   when the user uses the app subsequently.

23   So, for instance, you saw the

24   SESSION_CYCLE_DAY_FIRST_LAUNCH, which gives the ovulation

25   information. You know, the first launch is an indication that

1 that's being sent at first launch because the user had just

2 filled out the onboarding survey.

3   There's subsequent data that appears in different event

4 names as the user uses the app.

5 Q. Dr. Egelman, I'd appreciate if you answered my questions.

6   I asked: Did the 12 app events, the 12 that this

7 litigation actually concerns, do they fire again after the

8 registration process?

9 A. I think I answered that. No, there are different app

10 events that get fired.

11 Q. Let's talk about your use of the phrase "health

12 information."

13   You did not use a medical textbook to define the term

14 "health information" that you used throughout your report;

15 correct?

16 A. I'm not that type of doctor. No.

17 Q. You did not consult with any physicians to define "health

18 information" either; correct?

19 A. I used the term in a colloquial sense. I think the

20 average person would think of whether they're having their

21 period or are pregnant or what their ovulation cycle is. I

22 think that every person would probably think of that as health

23 or medical information, regardless of whether or not you're a

24 physician.

25 Q.   Dr. Egelman, I did not ask you about what every other

1 person might do. I asked you about yourself.

2   You, Dr. Egelman, did not consult with any physicians to

3 define "health information" as you used that term in your

4 report and in your testimony; correct?

5 A.   I didn't think that necessary because it seemed so

6 obvious.

7 Q.   You did not rely upon any publications from the Department

8 of Health and Human Services to define "health information" as

9 you used it throughout your report; correct?

10 A.   That didn't seem necessary either, no.

11 Q.   And by "no," you mean yes, you did not actually use the

12 Department of Health and Human Services' definition for "health

13 information"?

14 A.   Correct.

15 Q.   In researching your opinions and crafting your report, you

16 did not look to the definition of "health information" in any

17 laws; correct?

18 A.   I wasn't asked to form a legal opinion. No.

19 Q.   So once again, by "no," you mean yes, you did not look to

20 the definition for "health information" in any laws?

21 A.   That's correct.

22 Q.   You did not consult any peer-reviewed definition of

23 "health information" when researching and arriving at your

24 opinions in this case; correct?

25 A.   Again, that seemed unnecessary because I thought this

1 would be pretty commonly understood to be health information.

2 Q. Dr. Egelman, you did not answer my question. You stated

3 whether you thought it was necessary. I'll ask my question

4 again --

5 A. I think I did.

6 Q. You did not consult with any peer-reviewed definition of

7 "health information" when researching and arriving at your

8 opinions in this case?

9 A. That's correct.

10 Q. In fact, you did not consult any sources of any kind when

11 coming to your conclusions as they relate to what constitutes

12 health information; correct?

13 A. Yes, that's probably correct.

14 Q. We've been talking about your definition of health

15 information. Let's talk a moment for -- let's talk about

16 medical information.

17   To be clear, you're not providing an expert opinion as to

18 what constitutes medical information; correct?

19 A. Again, I think I used the terms health and medical

20 information interchangeably and colloquially. I don't offer a

21 formal definition, no.

22   MR. SADUN: I pass the witness.

23   THE COURT: Okay. We'll take our morning break.

24 We'll be back around 11:25-ish.

25   THE COURTROOM DEPUTY: All rise.

PROCEEDINGS

1 (The jury leaves the courtroom.)

2 (Proceedings were heard out of the presence of the jury.)

3 **THE COURT:** Okay. What's happening with that overseas

4 person, the witness? The overseas witness?

5 **THE COURTROOM DEPUTY:** You may be seated.

6 **MS. SHARTON:** Thank you, your Honor.

7 We did meet and confer last night, and plaintiffs have

8 agreed that it's okay with them, if Your Honor will permit it.

9 And if you could hear me out, if that's okay?

10 **THE COURT:** Let's see. When was this person going to

11 go on?

12 **MS. SHARTON:** Well, either as soon as we could,

13 Your Honor, when they rest -- would be in our case in chief, so

14 either tomorrow --

15 **THE COURT:** We're not -- I made this clear at the

16 pretrial conference. We're not doing formalities about

17 cases-in-chief --

18 **MR. SADUN:** No, no.

19 **THE COURT:** When is the practical time for this

20 witness to show?

21 **MR. SADUN:** Either tomorrow at the earliest, if we get

22 to it.

23 **THE COURT:** You know, we're dealing with government

24 IT, which neither turns on a dime and costs about a dime, which

25 means it's very hard to get all this set up and done, so --

1   **MR. SADUN:** We could do it next week.

2   **THE COURT:** -- I don't know whether I can do it, and I

3   have to make sure we have a secure line and everything else.

4   So you don't have any problem doing this?

5   **MR. CANTY:** We had no objection. We really don't take

6   a position. I'd like to question the witness. If they're

7   going to put their chief medical officer up, we'd like to have

8   her in person, but they're telling us she's unavailable.

9   **THE COURT:** Well, it may not be 'til next week.

10   **MS. SHARTON:** Yeah, that's fine. Whatever is

11   convenient for the Court.

12   Could I give you a little context on the conditions that

13   we would have or our end? And that would be the witness would

14   testify --

15   **THE COURT:** Well, with IT things, no. And you can

16   deal with the IT people.

17   **MS. SHARTON:** Yeah, I get it, Your Honor.

18   But in our London office with our professional IT and AV

19   people, and then one of my --

20   **THE COURT:** That's fine. I'm here in San Francisco in

21   the courtroom --

22   **MS. SHARTON:** I understand.

23   **THE COURT:** -- that's the part that matters. It

24   doesn't matter if it's being beamed in in a manner that I can

25   receive, so that's what we're going to have to work out. I

 1   don't know the answer to that --

 2   MS. SHARTON: Okay --

 3   THE COURT: -- so I'll have to figure that out. Okay?

 4   So you're just going to have to wait.

 5   MS. SHARTON: Okay.

 6   THE COURT: So just have that person stand by for as

 7   early as tomorrow, and I don't know what's going to happen.

 8   How long is this going to take?

 9   MS. SHARTON: She'd be about an hour, 45 minutes on

10   direct. I would -- no problem doing it next week if that's

11   easier, Your Honor, too.

12   THE COURT: What about cross?

13   MR. CANTY: I'll be efficient, Judge. I think I can

14   do it in less than half an hour.

15   THE COURT: Okay. I'll see what happens.

16   MS. SHARTON: Thank you.

17   (Call to order at 11:02 a.m.)

18   (Recess taken at 11:02 a.m.)

19   (Proceedings resumed at 11:30 a.m.)

20   (Proceedings were heard out of the presence of the jury.)

21   THE COURTROOM DEPUTY: All rise. This court is now in

22   session. The Honorable James Donato presiding.

23   Calling Civil 21-757, Frasco versus Flo Health.

24   THE COURT: Okay. You've got to worry about somebody?

25   MR. LEVIS: Yes, Your Honor. I'll stand here just so

1   I don't make my colleague move from the podium.

2   THE COURT: Come on up. Yes.

3   MR. LEVIS: Yes, we have an issue we wanted to raise

4   regarding the next expert, Mr. Karkanias.

5   Mr. Karkanias, as Your Honor may remember, was one of

6   Flo's experts that was limited to rebuttal testimony provided,

7   that it was not duplicative. You said that the issue would be

8   revisited at trial.

9   He's offered to rebut Dr. Egelman; however, based on the

10   contents of the demonstratives that we've seen, there are

11   certain opinions that we believe he intends to testify about

12   that are not related to anything Dr. Egelman just testified

13   about specifically.

14   THE COURT: Give me an example.

15   MR. LEVIS: Sure. The privacy policies correctly --

16   THE COURT: Can you show me a demonstrative?

17   MR. LEVIS: I would need a copy of Flo's slides.

18   THE COURT: Oh, by the way, I want a color copy of

19   what you used for the exam. Okay?

20   MS. MEDINA: Yes, I have that. We can give it to you.

21   THE COURT: Just hand it to Judge -- Ms. Clark.

22   MR. SADUN: The parties -- we changed these.

23   THE COURT: Just one second. Let your colleague get

24   ready. I don't want a marked-up copy.

25   MR. CANTY: I'll take that tab off, Judge.

PROCEEDINGS

1   THE COURT: I just want to make sure you weren't

2   giving me --

3   MR. CANTY: Your Honor, that is the version that was

4   used.

5   THE COURT: This morning?

6   MR. CANTY: This morning, correct, from Dr. Egelman's

7   presentation.

8   MR. CLUBOK: Wait. I'm sorry. What's been marked as

9   Exhibit 2001 that you just handed the Court is what you used

10   during the presentation?

11   MR. CANTY: Correct.

12   THE COURT: This is not in evidence.

13   MR. CLUBOK: Correct.

14   THE COURT: This is just demonstratives. Okay.

15   You're going to show me the ones --

16   MR. LEVIS: I understand.

17   THE COURT: Do you want to show me the ones -- you

18   want a different set?

19   MR. LEVIS: No, we're talking about the Karkanias --

20   THE COURT: This is the one coming up. Okay.

21   MR. LEVIS: These are the slides that we're --

22   THE COURT: All right.

23   MR. LEVIS: If you look at these slides, this is what

24   we understand that Mr. Karkanias will testify to.

25   THE COURT: Show me what you think is out of bounds.

1 **MR. LEVIS:** At the back, there's the single pages.

2 These are large ones. They relate to the privacy policies.

3 Dr. Egelman did not offer any testimony or opinions about

4 Flo's privacy policies today or yesterday. He testified -- so

5 testimony about the privacy policies and whether they reflect

6 Flo's practices or --

7 **THE COURT:** Just these three slides?

8 **MR. LEVIS:** And there are sections. If you look at

9 the expanded version that has all the slides on it, where there

10 are introductory slides that list the opinions. We think it

11 shouldn't mention the privacy policies there as well.

12 **THE COURT:** Well, that's not rebuttal, because

13 Dr. Egelman did not -- Egelman?

14 **MR. SADUN:** Yeah.

15 **THE COURT:** Sorry.

16 **MR. SADUN:** I have his --

17 **THE COURT:** Dr. Egelman did not testify about whether

18 Flo accurately described its practices. So that's out.

19 **MR. SADUN:** Your Honor, may I be heard, please? I

20 have the transcript of Dr. Egelman's testimony where he

21 specifically discusses Flo's privacy policies.

22 **MR. CLUBOK:** He did gratuitously --

23 **THE COURT:** Did Flo accurately describe its practices?

24 **MR. SADUN:** Page 400 yesterday. It didn't show the

25 user the privacy policy. It added terms of services with a

1 link to the privacy policy.

2   THE COURT: Hand it to Ms. Clark, please.

3   THE COURTROOM DEPUTY: You all may be seated.

4   THE COURT: Oh, yes. I'm sorry. Everybody can sit

5 down.

6   (Laughter.)

7   THE COURT: What is it? What line?

8   MR. SADUN: You have my one copy, Your Honor. Again,

9 we sent these three days ago. We only heard of this objection

10 five minutes ago.

11   But right there is one example of him discussing the

12 privacy policies. He did so again today.

13   We'd ask, given that --

14   THE COURT: Hold on just one second. All right.

15   Flo didn't show the user the privacy policy or the terms

16 or conditions.

17   Okay. The rebuttal point would be yes, Flo showed them

18 the policy, but that's it. Nothing more. Okay? Absolutely

19 nothing more. This broad category of did Flo accurately

20 describe -- no. Way beyond the scope of his testimony.

21   Okay. That takes care of that one.

22   What's the next one?

23   Is that the same for all of these?

24   MR. LEVIS: That was the only issue we had with that

25 presentation.

1   **THE COURT:** That's fine. That's perfectly fine to say

2   no, you know, Flo handed out the policy like candy, but it

3   can't go past that.

4   I'm going to give all this back to you, and let's call in

5   the jury.

6   **THE COURT:** All rise for the jury.

7   (The jury enters the courtroom.)

8   (Proceedings were heard in the presence of the jury.)

9   **THE COURTROOM DEPUTY:** You may be seated.

10   **THE COURT:** Okay. Go ahead.

11   **MR. CLUBOK:** Thank you, Your Honor.

12   <u>**CROSS-EXAMINATION**</u>

13   **BY MR. CLUBOK:**

14   **Q.**   Good afternoon, Dr. Egelman. I'm Andy Clubok. I

15   represent the company that was called Facebook during the class

16   period, but now it's called Meta.

17   I've -- and I've never met you before today; right?

18   **A.**   I don't believe so, no.

19   **Q.**   Okay. Except for us speaking about trying to get your

20   exhibits straight and me spilling your water by mistake, we've

21   not ever spoken; correct?

22   **A.**   Correct.

23   **Q.**   Okay. So what I'm going to try to do -- there's been a

24   lot of discussion about things that were transmitted, things

25   that were recorded, all kinds of different information that was

1   inputted, and I'm going to see if -- I'm going to try the best

2   I can to ask you to help me help the jury sort out who recorded

3   what, who transmitted what, and what's the what. Okay?

4   All right. So let's try to focus in first on the

5   12 custom app events that are actually at issue.

6   MR. LEVIS: Objection. There's no question.

7   THE COURT: Sorry?

8   MR. LEVIS: Counsel is testifying.

9   THE COURT: Just -- you don't have to do the whole

10   lead-in. Just ask the question.

11   MR. CLUBOK: Okay.

12   BY MR. SADUN:

13   Q.   There are 12 custom app events that are at issue in this

14   lawsuit; correct?

15   A.   Yeah, that's my understanding, yes.

16   Q.   And we have an exhibit, 1271, that just identifies these

17   12, just so we can orient ourselves. And if --

18   MR. CLUBOK: I'd like to -- if it's all right, I'd

19   like to publish that to the jury if there's no objection.

20   MR. LEVIS: No objection.

21   THE COURT: Okay.

22   BY MR. CLUBOK:

23   Q.   So 1271 is an excerpt from the preliminary jury

24   instructions, and it's specifically the area that's a

25   stipulation of fact where the parties all agreed that this

1   is --

2   **MR. LEVIS:** Objection. This is still testifying by

3   counsel.

4   **THE COURT:** It's a little lead-in.

5   But cut the table-setting down. Just get into it.

6   **BY MR. CLUBOK:**

7   Q.   Okay. So the 12 custom app event names at issue in this

8   lawsuit: R_CHOOSE_GOAL R_SELECT_LAST_PERIOD_DATE,

9   R_SELECT_CYCLE_LENGTH, R_SELECT_PERIOD_LENGTH,

10 RH_CHOSEN_PERIODS, RH_CHOSEN_PREGNANCY,

11 RH_CHOSEN_PREGNANCY_METHOD, R_PREGNANCY_METHOD,

12 R_PREGNANCY_DATE, R_PREGNANCY_WEEK_CHOSEN,

13 R_PREGNANCY_WEEK_CHOSEN_UNKNOWN, and

14 SESSION_CYCLE_DAY_FIRST_LAUNCH; correct?

15 A.   Yes.

16 Q.   Now, you at some point in -- I think in your report or in

17 your deposition or your -- the lawyers who hired you have used

18 the phrase "onboarding survey" when you described these -- some

19 of these custom app events or the answers to some of these

20 custom app events; is that correct?

21 A.   Yes.

22 Q.   The word "onboarding," though, doesn't appear in the list,

23 but the word "launch" appears at least for one of them; right?

24 A.   Sure.

25 Q.   Okay. So regardless of what the name is, whether it's an

1   onboarding survey or first launch questions, the bottom line is

2   that these -- there are questions that pop up in on the

3   Flo Health app the very first time a user installs and then

4   downloads the app for the first time; correct?

5   **A.**   That's correct.

6   **Q.**   And the -- whatever gets transmitted that's associated

7   with these 12 custom app events that are actually at issue in

8   this case is transmitted just the once upon that, as you call

9   it, onboarding or, as Flo calls it, the first launch of their

10   app; correct?

11   **A.**   No, that's not correct. I mean, you said "whatever is

12   transmitted." So these capture a set of other personally

13   identifiable information, like the advertising ID that we saw,

14   lots of information about the hardware, and other information

15   like that. The app that's sending the data, that's all -- that

16   also gets sent, and that gets sent consistently regardless of

17   the event name.

18   **THE COURT:** Can you just -- you can stay like that,

19   but put the microphone a little closer. You project fine,

20   but -- go ahead.

21   **BY MR. CLUBOK:**

22   **Q.**   I'm sorry. My question was: Whatever gets transmitted to

23   the SDK provider based on these 12 custom app events, that gets

24   transferred one time upon first launch or upon onboarding;

25   correct?

1   **A.**   No. I just said that that's not the case.

2   **Q.**   Okay. Well, it is the case, though, that app developers

3   are the ones who decide what custom app events to create;

4   correct?

5   **A.**   The event names, yes. They -- the app developer comes up

6   with the event names.

7   **Q.**   So the custom app event names at issue in this lawsuit

8   that's reflected on Exhibit 1271 were all created, named by, in

9   this case, Flo; correct?

10   **A.**   Yes. Flo chose the text that appears for those event

11   names, yes.

12   **Q.**   And Flo also chose -- and there's -- strike that.

13   In association with the names that are sent, there's also

14   certain parameters or data that's sent that's connected to

15   these names; correct?

16   **A.**   Yeah, absolutely.

17   **Q.**   And also, whether it's Flo or any app developer, it's the

18   app developer that chooses what parameters or what data to send

19   in connection with whatever it's called, these custom app

20   events; correct?

21   **A.**   Not entirely, no. As I explained previously, when

22   Facebook, you know, receives this data, it's also getting all

23   this personal information that they use to identify the user.

24   That's not selected by the app developer here. You know, we

25   saw the function that first where the SDK begins recording this

1   data. At no point does the developer supply the personal

2   information to that function that Facebook wrote. Instead,

3   Facebook's code is grabbing all of the information from the

4   device on its own.

5   Q.   What personal information?

6   A.   The advertising ID, IP address, information about the

7   hardware. All of the stuff that they use to try and identify

8   the user, if they don't do so successfully based on the

9   advertising ID.

10   Q.   But the phrase "parameters" -- if I use the word

11   "parameters" to describe the things like dates of women's

12   periods or lengths of their periods or whether they knew or did

13   not know the date of their last period, the -- can you

14   understand that when I use the word "parameters," we're talking

15   about the information that we've discussed in this lawsuit that

16   is that associated with these 12 at-issue app event names?

17   A.   Well, I mean, there are lots of -- okay. So you're -- you

18   were talking about parameters associating with these

19   transmissions. There's lots of other data that accompanies

20   these transmissions, as we've seen.

21   But, yes, certainly Flo creates the event names, and if

22   they have the, you know, the optional, you know, values for

23   those event names that you saw as well, yes, that is created by

24   Flo.

25   Q.   Okay. So for these 12 app event names, Flo created all

1   the parameters that were transmitted that were associated with

2   the names; correct?

3   A.   Yes.

4   Q.   And that's the same for any app developer? Any app

5   developer for custom app events names it and then decides what

6   parameters to send along with the names; correct?

7   A.   Yeah. That's why they're called custom app events.

8   That's in contrast to standard app events.

9   So by default, it's not at issue in this case, but,

10   you know, the Facebook SDK collects a bunch of event names by

11   default that the developer doesn't specify.

12   So yes, by calling then custom event names, that's

13   intended to disambiguate from that.

14   Q.   Right. The custom app event names that are at issue in

15   this case -- strike that.

16   Okay. So -- and the fact of the matter is that -- there's

17   a question in this lawsuit and there's been different phrases

18   used about transmitted versus recorded.

19   It's true that the code that's used by the SDK -- or

20   strike that.

21   The code associated with the SDK can be used to transmit

22   data to the SDK provider; correct?

23   A.   That's the purpose of the SDK, yes.

24   Q.   Let -- were you here in court during the opening

25   statements?

1   A.   I was.

2   Q.   So I want to show you a slide that was used by the

3   plaintiffs.

4   MR. CLUBOK: Mr. Johnson, could you please pull up

5   Slide 14 in the plaintiffs' opening.

6   BY MR. CLUBOK:

7   Q.   Now, they put up a reference to a statute. I don't want

8   to get into whether they accurately described the statute, but

9   I want to focus on what they said about their claim.

10   And they said, "Plaintiffs claims that Meta violated CIPA

11   by recording their private conversation with Flo without

12   plaintiff's consent."

13   That's how they described their claim. And you were here

14   when they did that; correct?

15   A.   I was, yes.

16   Q.   Okay. So with all that, I want to try to figure out what

17   was transmitted, what was recorded, and exactly what we're

18   talking about here. And I've got a board, the old-fashioned

19   way. Hopefully this will work.

20   I see it's already started to fall apart.

21   And you can see what we've done here --

22   A.   You can't raise it like a foot or two, can you? Because I

23   can only see the top third.

24   Q.   We can't, but I'll hold it up when we get down there.

25   I will represent to you that what we have here on the

1 board is all the 12 custom app events that are at issue in this

2 case, although we've rearranged them to a slightly different

3 order, and I'll explain why as we go through.

4   So, for example, the very bottom one says R_CHOOSE_GOAL,

5 even though I believe that's probably the first question that's

6 asked in the actual app. Okay?

7   But I've got -- I'll represent to you and you can look at

8 it and I'll just tell you as best I could, unless I made a

9 typo, I just repeated the 12 app events that we already agreed

10 are at issue in the case.

11   **MR. LEVIS:** Object to this demonstrative. This was

12 also not disclosed, and it is inaccurate.

13   **MR. CLUBOK:** I would like to inquire the witness about

14 it.

15   **THE COURT:** Wait one second. I can't see it.

16   Can you see it? Are you able to see it, jury?

17   All right. That's fine. It's like a little worksheet.

18 It's not in evidence. It's not evidence. Okay? It's just

19 something he's using as an aid to his questions.

20   All right. Go ahead.

21 **BY MR. CLUBOK:**

22 **Q.**   So I want to talk about the event names, and since the

23 plaintiffs have claimed that Meta recorded private

24 conversations between Flo and its users --

25   **MR. LEVIS:** Objection. Counsel is still testifying.

1   THE COURT: Can you just stop the lead-ins and ask the

2   question?

3   MR. CLUBOK: Yes.

4   THE COURT: Okay.

5   BY MR. CLUBOK:

6   Q.   Isn't it true -- and I think you've got slides that

7   corresponded to the first three questions. And these first

8   three questions, other than CHOOSE_GOAL, would be -- or the

9   first three custom app event names would be

10   R_SELECT_LAST_PERIOD_DATE, and if you had used the Flo app,

11   according to you -- if we could look at Slide 18 -- it's the

12   case that for each of Ms. Gamino, Ms. Chen, and Ms. Wellman --

13   let's see.

14   For each of these plaintiffs, at some point they were

15   asked "When did your last period start"; correct?

16   A.   That's -- yes. That's what it says there, yes.

17   Q.   And then they had an opportunity to respond to Flo, and

18   the response could have been "I don't know" or it could have

19   been a date that you selected with a wheel with your finger,

20   I guess; right?

21   A.   Yes. And so based on that event, Facebook learns whether

22   the user knew the date of her last period or not.

23   Q.   Okay. And so at this point, when, let's say, Ms. Gamino

24   first was asked the question "When did your last period start,"

25   did she answer "I don't know" or did she select a date?

1   **A.**   I have no idea how she answered. I guess you could

2   probably ask Meta.

3   **Q.**   Well, she was deposed in this case, and she testified here

4   live, and you've --

5   **THE COURT:** Just one second.

6   You need to move away from the jury. Sit in that chair at

7   that table. Just -- okay. Sorry I didn't notice that earlier.

8   Go ahead.

9   **MR. SADUN:** Sure.

10   **BY MR. CLUBOK:**

11   **Q.**   Have you ever, in all the work you've done in this case,

12   whether you did or did not read her deposition transcript,

13   whether you listened to her live, did you ever hear her say

14   whether she -- when she was asked "When did your last period

15   start," she gave an answer?

16   **A.**   My job was to independently examine the app, and that's

17   why I haven't looked at anything that the plaintiffs said --

18   **THE COURT:** I'm sorry to interrupt again.

19   You're not -- you go back over there.

20   **MR. SADUN:** All right. Yes, Your Honor. I can't see

21   it from over there.

22   **THE COURT:** You should not be anywhere up here. I

23   don't know what you're doing.

24   Just ask the question again and take it from the top.

25   **MR. CLUBOK:** Sure.

BY MR. CLUBOK:

Q.   Have you seen anything in the record that tells you what

Ms. Gamino answered to Flo back in -- actually, do you even

know the year or when she answers the first launch question?

A.   As I said, I have no idea. That's personal medical

information shared between the plaintiff and Meta, I guess, and

Flo.

Q.   No, it's -- okay.

     In this case, there's been testimony -- I will tell you

that Ms. Gamino first lanched the app in December of 2016, and

she did testify to that certainly at her deposition, maybe in

court. Okay?

     So for December --

          MR. LEVIS: Objection. Counsel is testifying.

          THE COURT: Well, I can't stop him, apparently.

     Go ahead.

                        (Laughter.)

          THE COURT: What's the next question? I mean --

BY MR. CLUBOK:

Q.   When Ms. Gamino answered this question in December of

2016, what was the answer she gave?

A.   As I said, I haven't paid any attention to what the

plaintiffs did or did not do. My job was to independently

examine the app to see what would have been collected by all --

you know, from all Flo users during the time period.

1 Q.   Have you seen any evidence at all to show whether she

2 answered "I don't know" or she gave a date? Yes or no?

3 A.   I feel like I just answered that question. I haven't seen

4 what any of the plaintiffs have done because that wasn't my

5 job.

6 Q.   Okay. So I'm going to put for Ms. Gamino, at least from

7 what you know, she either answered -- fair to say she either

8 answered "I don't know" or she gave a date; right?

9 A.   I mean, those are the two options; right? She would have

10 had to have done those things.

11 Q.   Okay. How about Ms. Chen? Same thing. Back in March

12 of 2017 when she first installed and downloaded the app, what

13 did she answer to that question?

14   Did she answer "I don't know" or did she give a date?

15 A.   Same response. I have no idea what she would have put

16 individually. I know that those are the only two possible

17 responses.

18 Q.   And how about Ms. Wellman? In July of 2018, when she

19 first downloaded the app and -- or installed the app and

20 downloaded it, what did she answer to this question?

21   Did she give an answer of "I don't know" or did she give

22 an answer of a date?

23 A.   Same response.

24 Q.   Okay. So what we do know from your testimony is that the

25 only thing that was sent to Facebook would have been either a

1 string of code that ended with known or a string of code that

2 ended with unknown; correct?

3 **A.**   For that specific event? For -- yes, for that specific

4 event, but as we went through, there were several others that

5 then revealed the contents of that communication.

6 **Q.**   Right. We're going to go one by one. I want to do all

7 12 -- okay? -- so it's very clear to the jury exactly what was

8 really sent to Meta, if anything.

9   And so if -- if Ms. Gamino or Ms. Chen or Ms. Wellman had

10 actually entered a date, like February 15th, was the

11 Facebook SDK recording that date?

12 **A.**   I mean, the Facebook SDK -- well, no. Again, for those

13 three questions, we've already went over that it just reported

14 known or unknown to Facebook for those three questions.

15 **Q.**   Okay. So -- well, I guess I can speak -- fair to say,

16 then, for those three questions, for example, "How long is your

17 period," Ms. Gamino either said "I don't know" or a number;

18 right?

19 **A.**   Correct.

20 **Q.**   And same thing for Ms. Chen; right?

21 **A.**   Correct.

22 **Q.**   And same thing for Ms. Wellman; right?

23 **A.**   Correct.

24 **Q.**   And then for select cycle length, same thing. With

25 Ms. Gamino's conversation with Flo when she's asked "On

1 average, how long is your cycle," she either said "I don't

2 know" or she gave a number; right?

3 A.   Correct, yes.

4 Q.   And same thing with Ms. Chen; correct?

5 A.   Correct.

6 Q.   Same thing with Ms. Wellman?

7 A.   Correct.

8 Q.   Okay. So the actual conversation for these three

9 questions that Ms. Gamino, Ms. Chen, Ms. Wellman had with Flo

10 was never recorded by Meta; correct?

11 A.   No, I disagree with that because, again -- your words --

12 it's a conversation. For those three questions, the user is,

13 you know, providing medical information to the app. And then

14 the whole point of using the app is for the app to, you know,

15 digest that information and offer health advice, and in this

16 case it provides the user -- the conversation the app

17 communicates back to the user about their cycle based on the

18 information that was submitted, and that conversation about

19 their cycle is what does get transmitted to Facebook.

20 Q.   For these three questions, "When did your last period

21 start," "On average, how long is your period," "On average, how

22 long is your cycle," whatever specific conversation that

23 Ms. Gamino, Ms. Chen, Ms. Wellman had with Flo, that actual

24 conversation was not recorded by Meta's SDK for those three

25 questions; correct?

1 **A.**   I disagree. Again, you say it's a conversation. So, yes,

2 the user, answering those, that part of the -- that half of the

3 conversation, yes, is not recorded.

4   The conversation back where Flo says, based on the medical

5 information you provided, here's some more medical

6 information -- that half of the conversation very much does get

7 transmitted.

8 **Q.**   We're getting to that. We're getting to that.

9 **A.**   I mean, we're there.

10 **Q.**   You were here -- many times your lawyers kept saying to

11 you in different questions Meta recorded, Meta recorded, Meta

12 recorded. And you heard yesterday --

13   **MR. LEVIS:** Objection.

14   **THE COURT:** It's okay. Go ahead.

15 **BY MR. CLUBOK:**

16 **Q.**   And you heard yesterday when they asked the same kind of

17 questions to the plaintiffs, they would say to the plaintiffs,

18 Meta recorded, Meta recorded, Meta recorded.

19   You would agree, though, that Meta -- if Ms. Gamino or

20 Ms. Chen or Ms. Wellman put an actual date for any of these

21 three first questions -- "When did your last period start," "On

22 average, how long is your period," "On average, how long is

23 your cycle" -- Meta was not recording that; can we agree on

24 that?

25 **A.**   Meta records the response that the Flo app gives in

1   response to those questions.

2   Q.   So the response that the Flo app gives is known or

3   unknown?

4   A.   No.   The response that the Flo app gives is based on the

5   answers to those three questions. The Meta -- the app

6   calculates information about the cycle and -- again, it's a

7   conversation. It's sending information back to the user, and

8   that half of the conversation is very much what does get sent

9   to Meta.

10 Q.   Whatever does get sent to Meta is whatever Flo programmed

11 to send to Meta, other than -- we'll put aside the device ID --

12   MR. LEVIS: Objection.

13   THE COURT: Okay. Let's get the question out first.

14 Go ahead.

15 BY MR. CLUBOK:

16 Q.   The substantive information, setting aside device IDs that

17 get sent to Meta about -- if any, about periods or pregnancy,

18 et cetera, whatever got sent to Meta had to have been chosen to

19 be sent by Flo; correct?

20 A.   It's a lot more nuanced than that. So, you know, Meta

21 knows what apps are sending it data and could certainly stop

22 the app from sending it data if it chose to.

23   I testified to Congress about this a few years ago.

24   Regarding apps that are collecting health information,

25 financial information, data from kids, a lot of companies,

1   advertising companies, have terms of service that say if:

2   You're an app developer, don't use our SDK in these, you know,

3   types of apps because that might violate privacy laws.

4   And, you know, certainly developers ignore that and do.

5   Meta receives the names of every single one of the apps

6   that send them data, and Meta could absolutely just terminate

7   service to every health-rated app, every financial app, and

8   child-directed app, but they choose not to, and instead, they

9   litigate it, like we are here, and that tells you that that

10 data is probably valuable to Meta, given that they need it for

11 their advertising business and they're spending millions of

12 dollars to litigate it, like we are now, rather than just

13 turning off those transmissions that they tell the public that

14 they don't want.

15   **THE COURT:** I'm going to jump in.

16   Now, it's important to be precise about time periods.

17 We're talking about -- what is it? -- 2016 to 2019?

18   **MR. LEVIS:** Correct.

19   **THE COURT:** Is what you just said about Meta being

20 able to turn our -- let me finish. I know you know where I'm

21 going, but nobody else does.

22   Is your testimony about Meta being able to turn off, as

23 you put it, health app -- SDKs for health apps true in 2016 and

24 2019?

25   **THE WITNESS:** Absolutely. And as an example of that,

1   some of the really early versions of the app that I tested used

2   an older version of the SDK. And so Meta, when those apps

3   first contact Meta, before they send personal information,

4   they, you know, make an earlier connection that reports the

5   version of the SDK and the app that it's integrated in. And on

6   those ones it returned an error from Meta servers saying the

7   SDK is too old, and at that point the SDK stops trying to

8   transmit personal data to Meta.

9   So, you know, when the SDK is too old, they get that

10   information from the same transmission that also contains the

11   name of the app. They could just as easily do the same thing

12   when it's a health-related app, when it's a child-directed app,

13   when it's a financial app. But instead, they just point to the

14   terms of service and say: Developers should have known to not

15   send us this data which we, you know, heavily monetize and rely

16   on for our business.

17   THE COURT: Okay. I'm sorry. Go ahead.

18   BY MR. CLUBOK:

19   Q.   We're going to get back to whether Meta could have or

20   should have stopped whatever was transmitted or when they could

21   have stopped or should they have stopped.

22   My question is simpler, though. I want to go back to the

23   beginning.

24   When somebody at Flo or several programmers decided what

25   to show on their app, what pictures to display, like it's up on

1 the screen right now to their users, and then what custom app

2 event names and parameters that they would create to send to

3 various analytics SDKs, isn't it true that the decision about

4 every piece of information that actually went to Facebook or

5 the other SDK providers was made by Flo, just like every other

6 app developer?

7 A.   No. I think I have conclusively said that that is

8 absolutely not the case.

9 Q.   Okay. Did Meta ever suggest to Flo -- have you seen any

10 documents where Meta ever suggested to Flo or reviewed Flo's --

11 strike that.

12   Let's move on.

13   "What year were you born?" That's the next question that

14 apparently Ms. Gamino, Ms. Chen, Ms. Wellman were each asked in

15 their apps.

16   I take it you don't know their answers; correct?

17 A.   I don't know what specific answers they entered for this

18 question, no.

19 Q.   And other than what we've learned --

20   Well, do you know if Facebook sometimes is told by its

21 users actual birth dates?

22 A.   Sorry. Repeat that.

23 Q.   Sorry. To use Facebook, you have to provide your birth

24 date; correct?

25 A.   I believe so, yes.

1 Q.   And at one point, each of these three women used Facebook;

2 correct, according to their testimony?

3 A.   If that's how they testified, sure.

4 Q.   Were you here yesterday when they testified?

5 A.   I was. I did not commit to memory every single detail of

6 the testimony.

7 Q.   Okay. So in terms of the birth dates, they would have

8 told Flo, if they told the truth -- Ms. Gamino, I will say, was

9 born in 1986; Ms. Chen, like me, was born in 1967; and

10 Ms. Wellman was born in 1984. Okay?

11   So we have on the screen here the question that was asked

12 by Flo about "What year were you born." That's the question

13 that's asked on your slide demonstrative; correct?

14 A.   Yes.

15 Q.   And if they put in a truthful answer, Ms. Gamino would

16 have put 1986; Ms. Chen, 1967; Ms. Wellman, 1984. Correct?

17 A.   I will assume that that's the case, yes.

18 Q.   And were these numbers -- 1986, 1967, or 1984 --

19 transmitted to Meta by Flo?

20 A.   No. As I said before, it calculates the approximate age

21 by just subtracting the current year from whatever year they

22 enter. So, for instance, today is the 23rd, so if you were

23 born on, you know, the 24th of July, it's probably going to

24 give you a slightly inaccurate date, right, and the age is

25 going to be off by a year because it just subtracts the year.

1 But that's fine for their purposes. They just want an

2 approximate age.

3 **Q.**   I think what you just said in simple terms is not only did

4 Flo not send Meta the year these women were born, but instead

5 they calculated an age that could have been right or could have

6 been off by a year, and that's what they chose to send to Meta;

7 correct?

8 **A.**   They sent their approximate age, yes.

9 **Q.**   Which was current year minus birth year, based on the

10 testing you did after the fact; right?

11 **A.**   I just stated that. Yes.

12 **Q.**   So if you have a recording device, if Meta was trying to

13 record or had control over recording, it would have actually

14 known '86, '67, or '84; right?

15 **A.**   I mean, someone who knows basic math could then

16 reconstruct the birth year.

17 **Q.**   Well, except for Ms. Chen, who was born in 1967, like I

18 was. She signed up for the app in the middle of the year. So

19 in -- and I believe it was in 2017.

20   Fair to say that if it was true that Ms. Chen signed up

21 for the app in 2017 and her birth date was 2067 [sic] and she

22 signed up before December or before her birthday, the

23 calculation would have, I guess, added a year to her birth

24 date, would have made her seem 50 instead of 49?

25   **MR. LEVIS:** Objection.

1   THE COURT: That's okay. Go ahead.

2   THE WITNESS: I already said that, yes. I mean, for

3 part of the year it will be off by a year.

4   But I think that most people, if their age, within a year,

5 is being disclosed without their consent would find that just

6 as serious as the accurate age being disclosed.

7 BY MR. CLUBOK:

8 Q.   Yeah, but Meta is not listening in on this conversation

9 where Ms. Chen is saying "I was born in 1967." Instead,

10 they're getting a calculation by Flo that's a year off that

11 says 50; correct? In simple terms.

12 A.   The purpose of the conversation is to collect the user's

13 age. Flo chooses to do this by asking for their birth year,

14 but the conversation is about the user's age.

15 Q.   Right, but in simple terms, isn't it true that Meta wasn't

16 recording or listening in on this conversation so they knew

17 1967; instead, they got an incorrect calculation just off by a

18 year of what Flo rounded, I guess, Ms. Chen's age to be? Isn't

19 that true?

20 A.   Again, with -- with -- with the number that they have

21 received and the ability to do basic arithmetic, they could

22 reconstruct that year.

23 Q.   Is that a "yes"?

24 A.   I'm not even sure what the question was at this point,

25 actually.

1 Q.   Okay. Let's move on.

2   How about the next one? The next one is "What year were

3 you born" for pregnancy. There's a welcome screen, and you

4 said in earlier versions of the app, the welcome screen showed

5 two options, basically: "I want to track my cycle" or "I want

6 to conceive" or "I want to try to get pregnant" -- different

7 words, different versions, but something like that; correct?

8 A.   Correct.

9 Q.   And then in a later version they added, actually, a third

10 option where you could say "I'm already pregnant"; correct?

11 A.   Correct.

12 Q.   Now, for Ms. Gamino, was she offered that third option?

13 A.   I don't know when she used the app.

14 Q.   But -- did you check? Did you test to see if she was

15 asked that third question?

16 A.   I mean, I've already said this multiple times that I

17 didn't take anything from the plaintiffs. I independently

18 tested the app. My testimony is not based on anything

19 plaintiffs have or have not said.

20 Q.   Okay. If any user, not just Ms. Gamino -- if any user had

21 downloaded the Flo app in December of 2016, would he or she

22 have been asked whether one of the -- would they have been

23 shown the screen with the two options that didn't include "I'm

24 already pregnant" or would they have been shown the screen with

25 the three options that included "I am pregnant"?

1 **A.** I believe in 2016 it was just the two options, but I could

2 be mistaken, since I don't have my notes in front of me.

3 **Q.** Okay. Actually, you remembered correctly --

4 **A.** Well, actually, I suppose I do have my report in front of

5 me.

6 **Q.** Well, actually, you do have your reports in front of you,

7 so if you need to refer to your reports if you can't answer a

8 question, then go ahead.

9   But the fact is for Ms. Gamino, it wasn't even an option?

10 **A.** Sure.

11 **Q.** So definitely there was no information about her pregnancy

12 transmitted on this first launch question; correct?

13 **A.** That's correct. When the ability to, you know, indicate

14 that you were pregnant was not present, then it did not record

15 that she was pregnant on that screen.

16 **Q.** And what about for Ms. Chen? If Ms. Chen signed up for

17 Flo in March of 2017, was she presented with the option of

18 saying she was already pregnant, or did she just have the

19 version that only had two options?

20 **A.** If she -- what was the date she used it?

21 **Q.** March of 2017.

22 **A.** Again, I would have to see when that change was made.

23 But, again, like the software functions the same for everyone.

24 There aren't, you know, individualized issues here. One person

25 using the software on a date, the software would act the

1   same --

2   Q.   Yeah.

3   A.   -- for another person using the soft- -- the same version

4   of the software on the same day.

5   Q.   So if John Doe or Jane Doe loaded the app on March

6   of 2017, would they have been given the option for any of the

7   pregnancy questions that say -- would they have been given the

8   option to say "I want to track my pregnancy"?

9   A.   If that option wasn't pregnant -- I'm sorry. If the

10   option wasn't present, then presumably they would not have been

11   able to enter that as an option, no.

12   Q.   And fair to say for any user -- not just Ms. Chen, but

13   anyone through March of 2017, it was not an option; correct?

14   A.   Same response.

15   Q.   Now, we get to Ms. Wellman. And so for Ms. Wellman, by

16   that time it had become an option. One of three buttons you

17   could push by the time Ms. Wellman does this in -- I think it

18   was July of 2018, Ms. Wellman or any other user of Flo in July

19   of 2018, they would have had the options; correct? All three?

20   A.   I believe so, yes.

21   Q.   And -- but if they didn't click that they were already

22   pregnant, if instead they either clicked "I'm trying to

23   conceive" or "I'm trying to track my cycle" or whatever the

24   wording of the other two options were, then they would never be

25   asked any of the pregnancy questions; right?

1   **A.**   If they didn't say they were pregnant, no, they would not

2   be asked the pregnancy questions.

3   **Q.**   And you know Ms. Wellman testified that she was not

4   pregnant when she first signed onto the app? She said she

5   either -- she had a goal of getting pregnant.

6   Were you here for that testimony?

7   **A.**   Again, I was there for the testimony. I don't remember

8   all of the minutia of it.

9   **Q.**   Okay. Do you remember what -- at one point said I don't

10   know if I checked the goal of getting pregnant or if I checked

11   goal and then she changed her answer --

12   **MR. LEVIS:** Objection.

13   **BY MR. CLUBOK:**

14   **Q.**   -- were you here for any of that?

15   **A.**   Same response.

16   **Q.**   Okay. But fair to say, we do know that Ms. Wellman was

17   not pregnant, so if any user -- not just Ms. Wellman, any user

18   in 20- -- at any point, actually, after the third option was

19   given, if they didn't say "I'm already pregnant" when I first

20   launched the app, they'd never be asked any of the pregnancy

21   questions; right?

22   **A.**   I'm not sure that's accurate. I know there was a

23   pregnancy mode in the app that you could switch to afterwards,

24   so they might have -- they might be given those questions if

25   they switched to the pregnancy mode after having done the

1 onboarding survey.

2 Q.   But what's at issue in this case, the 12 custom app

3 events, none of them transmit data -- these 12 app events

4 relate to that? Whether or not someone changed while they were

5 using the app, that's not going to be transmitted for these 12

6 at-issue custom app events; correct, sir?

7 A.   I was just trying to answer your question factually.

8 Q.   Is that a "yes" to my question?

9 A.   That's correct.

10 Q.   Okay. So the fact of the matter is "What is your

11 pregnancy week" -- anyone who logged onto this app at the time

12 Ms. Gamino did or earlier, it would have not have been an

13 option to even answer that question, let alone transmit it to

14 Meta; correct?

15 A.   Yes. Correct.

16 Q.   Same thing for by the time Ms. Chen logs on. Anyone who

17 logged on by March of 2017 or earlier, like Ms. Chen did, also

18 not even an option to answer the pregnancy questions; right?

19 A.   Sure. I mean, like the specific event names did slightly

20 change throughout the class period.

21 Q.   And again --

22 A.   And features were added to support -- new events were

23 added to support new features, like the pregnancy option, from

24 the onboarding survey. Sure.

25 Q.   Right. I'm trying to have you help the jury understand

1   exactly what was really available for each of these women at

2   the time they logged onto the app the first time.

3   And so for Ms. Wellman -- now, Ms. Wellman, the option was

4   available if you were pregnant when you first launched the app,

5   but if you weren't, fair to say that you would never be asked

6   "What is your pregnancy week"; correct?

7   **A.**   Again, as a factual matter, that's not entirely correct,

8   because if they switched to the pregnancy mode they would be

9   asked that question.

10   **Q.**   Ah --

11   **A.**   In terms of the onboarding survey, that event would not

12   have been sent at that time if they did not select that reason

13   for using the app from the onboarding survey.

14   **Q.**   Right. Let's -- I apologize if I wasn't clear.

15   I mean to contain my questions to what you called the

16   onboarding survey and what Flo calls the first launch

17   questions. Okay?

18   So for the first launch questions or the onboarding

19   survey, it never would be asked -- no questions about pregnancy

20   week would be asked to someone if they weren't pregnant when

21   they first launched the app; correct?

22   **A.**   That's correct.

23   **Q.**   And, in fact, to save time, I could just mark through, I

24   guess, PREGNANCY_METHOD, PREGNANCY_METHOD_DATE,

25   RH_CHOSEN_PREGNANCY_METHOD, and

1 Pregnancy_Week_Chosen_Unknown -- I could mark through all of

2 those the exact same way, as in not an option at all for anyone

3 who signed up to the app by the time Ms. Gamino did or earlier;

4 correct?

5 A.   When those options were not present in the app, users

6 would not have selected them; correct.

7 Q.   And same thing for anyone who signed up to the app like

8 Ms. Chen or earlier, it wouldn't even have been an option to

9 answer any of the other questions about their actual pregnancy

10 when they launched the app; correct?

11 A.   Again, when those options were not present in the app,

12 those events would not have been recorded; correct.

13 Q.   So I'm marking Xs -- I have terrible handwriting. I don't

14 even know what this is. It's some kind of scribble just to

15 indicate that none of these were options.

16   And, in fact, sir, on these -- you know, before, you

17 quibbled with me and you said: Well, now we know the questions

18 that Flo asked but we don't know the answers.

19   For these, do you even know the questions that were asked?

20 A.   I can't see any of that, actually.

21 Q.   So how about for R_PREGNANCY_METHOD? Do you know what

22 question Flo even asked to elicit any kind of transmission of

23 data with respect to R_PREGNANCY_METHOD?

24   What was the question they asked?

25   I didn't see that in your slides.

1   **A.**   Yeah, it wasn't super relevant for this purpose.   But

2   basically, that gets into -- so when the user -- when you

3   indicate that you're pregnant, the first question is how many

4   weeks along you are, and you can answer "I don't know."   It

5   then asks other questions if you indicate "I don't know," such

6   as date of conception, last period, which it then tries to

7   infer the due date based on that information?

8   And so the pregnant -- R_PREGNANCY_METHOD is basically an

9   event based on how the pregnant -- the due date was determined,

10   which of those questions.

11   **Q.**   Are any of those questions transmitted to Meta by any of

12   the logs that you saw working on this case?

13   **A.**   I honestly don't remember that particular one.

14   **Q.**   Sorry.   You don't even remember the app event at all or

15   you don't remember --

16   **A.**   No, I remember the app event, which is why I was able to

17   describe it.   But in terms of when it was sent to Meta, which

18   versions, and what the associated values were, I couldn't tell

19   you off the top of my head.

20   **Q.**   Actually, honestly, the questions were never sent to Meta

21   as far as all your logs show; correct?

22   If I dug through all of your logs and tried to find

23   anything in your logs about what these questions were for these

24   ones that I've got blank up here -- for pregnancy method

25   through pregnancy week chosen, I wouldn't find it in any of

1   your logs or any notes; right?

2   **A.**   Huh?   No, the whole point of communicating the custom app

3   name is to communicate what question the user just answered.

4   **Q.**   Right.   In your report -- you've got your reports right

5   there.

6   **A.**   Yeah.

7   **Q.**   Look through your reports. Anywhere in your reports do

8   you identify what questions Flo supposedly asked Ms. Chen -- or

9   not Ms. Chen -- Ms. Gamino and Ms. Wellman -- just to anybody

10   in the world that were associated with these -- one, two,

11   three, four next custom app events? Is it in your reports you

12   got up there or anywhere that you identified?

13   **MR. LEVIS:** Objection.

14   **THE WITNESS:** I mean, I came across these events in

15   the process of analyzing the app. If you want me to go

16   through -- I mean, this doesn't have all of the traffic logs

17   that I generated. I could go through and look and answer your

18   question.

19   **BY MR. CLUBOK:**

20   **Q.**   Let's cut to the chase. It's not anywhere in your

21   reports; right?

22   **A.**   I --

23   **Q.**   You did not identify as -- you don't -- you never identify

24   in your reports the actual questions that were asked for one,

25   two, three, four of the at-issue events; isn't that true?

1   A.   I'm saying I don't think that is true.

2   Q.   But you can't -- you can't -- they were certainly not on

3   the slides that you presented in direct testimony; right?

4   A.   We did not specifically cover those, those specific events

5   in the direct testimony, no.

6   Q.   And as you sit here today, you're unable to tell the jury

7   what questions Flo asked anybody in the world with respect to

8   these next four; correct?

9   MR. LEVIS: Objection. Misstates testimony.

10   THE COURT: That's okay.

11   Go ahead. You can answer.

12   THE WITNESS: No. As I said, I disagree with that

13   assessment.

14   BY MR. CLUBOK:

15   Q.   Oh, okay. So what were the exact questions that were

16   asked in connection with R_PREGNANCY_METHOD, the exact

17   questions that led to that answer?

18   A.   It's easy to just go to the source code to see what was

19   presented on the -- in the app on the screen when that event

20   was programmed to be sent.

21   Q.   You'd have to go to the source code of the Flo app? That

22   would be the easy thing to do to figure out what questions Flo

23   asked its users? That's what you're saying?

24   A.   That's one of many ways of inferring that. The other way

25   is simply retesting the app, paying attention to what you enter

1 and then what triggered that event to get sent.

2 Q.   Okay.

3 A.   You can reconstruct it that way without access to any

4 sensitive information associated with Flo.

5 Q.   But since the jury doesn't have the source code -- and I

6 don't know if you have the source code up there -- just right

7 at this moment, is it true that you cannot say or don't

8 remember what questions Flo asked its users with respect to

9 those four categories? Is that fair?

10 A.   No, I already said I don't think that's fair, because one

11 could easily reconstruct that when just simply looking at the

12 app or the source code.

13 Q.   I'm saying as you sit here right this moment --

14 A.   Sure. I didn't memorize it.

15 Q.   Okay.

16 A.   That is fair to say.

17 Q.   So as you sit here, it's a question mark as to what these

18 questions even were; correct?

19 A.   I think --

20 Q.   For you?

21 A.   -- I described the questions that lead to that event.

22 Q.   But you're unable to give the exact questions as you sit

23 here; true?

24 A.   We went over those in the direct, the pregnancy questions

25 that lead to those events.

1 Q. I'm going to try this one more time, Dr. Egelman. Just

2 straight up with the jury.

3 Just the fact of the matter is, as you're sitting there --

4 MR. LEVIS: Objection.

5 THE COURT: Sorry?

6 MR. LEVIS: Objection.

7 THE COURT: He hasn't finished the question.

8 MR. LEVIS: All right.

9 THE COURT: Go ahead.

10 MR. CLUBOK: Thank you.

11 BY MR. CLUBOK:

12 Q. I'm just going to ask this one more time and then we're

13 going to move on.

14 You, Dr. Egelman, just sitting up there today, based on

15 whatever work you did to get ready to come here and present to

16 the jury, as you sit here right now, is it fair to say you

17 don't remember the exact questions that Flo Health asked its

18 users that generated responses to these next four custom app

19 events on my chart; correct?

20 A. I can only see the R_PREGNANCY_METHOD, which is what I was

21 describing to the jury, that I do understand what that one

22 represents. It's based on when the user indicates that they

23 don't know their due date, they get other questions that are

24 used to try and infer that due date, and that's the

25 R_PREGNANCY -- the R_PREGNANCY_METHOD has to do with that.

1 Q.   Okay. I was trying to do this quickly. I'll just do it

2 one at a time.

3   Right now, can you tell the jury the exact questions that

4 were asked, the exact word-for-word questions --

5 A.   The exact word-for-word, no. I did not memorize verbatim

6 word-for-word the questions.

7 Q.   Okay. And you also don't know the questions for

8 R_PREGNANCY_METHOD_DATE; correct?

9 A.   Same response.

10 Q.   And you also don't know the questions for

11 R_AGE_CHOSEN_PREGNANCY_METHOD; correct?

12 A.   I would -- again, I would have to go back and look to

13 answer that.

14 Q.   And please, you can take Exhibit 1271 if it'll help you

15 remember the names. I'm reading off the names that are on 1271

16 that I showed you right before we started. So just have that

17 out --

18 A.   I've produced tens of thousands of pages of source code.

19 I don't think those are in front of me.

20 Q.   Okay. Mr. Johnson has nicely put it up on the screen,

21 saving all of us.

22   Fair to say you don't, as you sit here today, remember the

23 exact questions that Flo Health asked --

24 A.   Yes.

25 Q.   -- with respect to AGE_CHOSEN_PREGNANCY_METHOD; correct?

1 **A.**   I did not memorize verbatim the wording, but it would be

2 trivial to go back and answer that.

3 **Q.**   And you also haven't come here prepared to give the

4 questions to the jury that were asked by Flo Health to its

5 users about R_PREGNANCY_WEEK_CHOSEN_UNKNOWN; correct?

6 **A.**   Same response.

7 **Q.**   Okay. And then, again, for Ms. Wellman or for anyone else

8 who logged onto the app after they added this pregnancy

9 feature, you're not aware -- well, if they weren't pregnant

10 when they logged onto the app, they would never have even been

11 asked the questions, whatever those questions were; correct?

12 **A.**   Sorry. Can you repeat the question?

13 **Q.**   If somebody wasn't pregnant -- strike that.

14   Once the app changed to there was a third option that said

15 I'm pregnant, I want to track my pregnancy, or words to that

16 effect, fair to say if they didn't check that upon initial

17 onboarding or first launch, then there would be no questions

18 asked -- these questions that you don't remember would not have

19 even been asked; correct.

20   And the questions, again, relate to R --

21 **A.**   Yes, the ones that have to do with pregnancy and when

22 they're actually expecting, those would not have appeared until

23 pregnancy was an option in Version 4, I think.

24 **Q.**   Okay. So for all those places we've got black Xs or red

25 Xs on the chart, and I just put a red X on the rest of

1   pregnancy questions under Ms. Wellman -- all I've been asking

2   you is to try to help this jury reconstruct what Flo and its

3   users communicated, what their conversations were.

4   Now let's talk about Facebook. Facebook would have gotten

5   absolutely nothing. Is it true that Facebook would have gotten

6   nothing with respect to any of these pregnancy questions for

7   any of the named plaintiffs in this case if none of --

8   A.   I'm not sure what you mean by "nothing," and also, you're

9   missing the last two rows there.

10   Q.   I'm sorry. I'm working up.

11   A.   Okay.

12   Q.   I want to stick to just these four pregnancy ones. We'll

13   get to those last two rows in a minute.

14   But for these four questions about pregnancy method,

15   whatever that means in this context, PREGNANCY_METHOD_DATE,

16   R_AGE_CHOSEN_PREGNANCY_METHOD, or

17   PREGNANCY_WEEK_CHOSEN_UNKNOWN, fair to say that for anybody who

18   signed up to the app before there was even an option, Facebook

19   certainly would have gotten nothing, and if it wasn't asked,

20   like Ms. Wellman, Facebook also would have gotten no parameters

21   associated with these custom app events names; correct?

22   A.   I'm not sure what you mean by "Facebook would have gotten

23   nothing," but certainly Facebook -- the event names that had to

24   do with choosing pregnancy from the onboarding survey or first

25   launch, whatever -- those event names, yes, would not have been

1   transmitted because they didn't exist at that time.

2   Q.   Okay. I'm putting red Xs up for all those.

3   This one's a little bit of a mess. You know what? I'm

4   going to use a red marker on this one and just write my own X

5   there. Okay? Do you see that?

6   All right. So now we get to -- and, actually, I'm just

7   going to ask one other question.

8   This one app event PREGNANCY_METHOD, the app events -- the

9   custom app events that refer to pregnancy method that I think

10   we can all agree weren't the answers or the questions or the

11   parameters weren't sent to Facebook for Ms. Gamino, Ms. Chen,

12   Ms. Wellman, but I just want to know what does it mean? Like

13   what is Flo doing with their users? You know, even if you

14   don't know the exact words or the exact questions, what do they

15   mean by "pregnancy method"?

16   MR. LEVIS: Objection. Speculation.

17   THE COURT: Well, he's just asking for your

18   understanding.

19   Go ahead.

20   THE WITNESS: I thought I already explained that. So

21   that has to do with not the method relating to the pregnancy,

22   but the method of calculating the due date.

23   BY MR. CLUBOK:

24   Q.   How do you know that?

25   A.   By examining the code and also examining the network

1 traffic.

2 Q.   You mean by decompiling and deconstructing Flo's source

3 code?

4 A.   Amongst several different things that I did, yes.

5 Q.   Have you seen any evidence that Meta ever decompiled and

6 deconstructed Flo's source code?

7 A.   I have no idea. Meta certainly employs reverse-engineers

8 that do security research internally, and so they certainly

9 have the expertise to do that. Whether they did it -- I have

10 no idea what happens inside Meta once they receive the data.

11 Q.   There are literally hundreds of thousands of app

12 developers who use the free open source code that we've called

13 the Facebook SDK in this courtroom; correct?

14 A.   Yes, it is a popular SDK.

15 Q.   And so for Meta to actually know what was really being

16 transmitted by those hundreds of thousands of app developers,

17 the bottom line is they'd have to deconstruct and decompile the

18 code for each one of those apps. Isn't that true?

19 A.   No, that's not true.

20 Q.   Okay. But -- we'll get back to that, but certainly for

21 these, have you seen any evidence that Meta has any idea what

22 pregnancy -- R_PREGNANCY_METHOD or R_PREGNANCY_METHOD_DATE or

23 R_AGE_CHOSEN_PREGNANCY_METHOD or

24 R_PREGNANCY_WEEK_CHOSEN_UNKNOWN means?

25 A.   I'm sorry. What? I don't understand.

1 Q.   You're right. You know what? I agree with you. That was

2 a "What?" question. I'm sorry.

3   Look, have you seen any documents that show that anyone at

4 Facebook ever understood what Flo meant when they described

5 their custom app events and talked about pregnant method,

6 whether, like you, they decided it was something about the

7 cycle or whether like other people might look at that and think

8 it means whether using IVF or contraception or surrogates or

9 natural method -- have you seen any evidence that Meta knew

10 what this meant the way you've decided what it means?

11 A.   Yeah --

12   MR. LEVIS: Objection.

13   THE COURT: Do you understand the question?

14   THE WITNESS: Yeah.

15   THE COURT: Go ahead.

16   THE WITNESS: That's literally their business model.

17 Their whole business model is to take this data, make sense of

18 it, profile people, and then target ads at them.

19   And so, yeah, absolutely. Meta probably recognized that

20 they're receiving data about people who were trying to get

21 pregnant, are pregnant, or whatnot. That's the whole reason

22 for collecting the data.

23 BY MR. CLUBOK:

24 Q.   Is that a "no" to my question?

25 A.   What was the question again?

1   Q.   Have you seen evidence of anyone in real life at Meta, any

2   document, any deposition testimony, any reference to anybody at

3   Meta actually decompiling or deconstructing or somehow figuring

4   out what Flo meant when they said R_PREGNANCY_METHOD as one of

5   their custom app events? Have you seen any evidence of

6   Facebook doing it specifically in this case? Yes or no?

7   A.   I mean, their business model is to take this data, make

8   sense of it, and then target people with ads?

9   In terms of whether I saw them decompile this app

10   specifically to that end, of course not.

11   Q.   Yeah. Okay. Okay. Let's talk about session cycle

12   launch.

13   First of all, what is SESSION_CYCLE_LAUNCH, in your

14   opinion?

15   A.   Do you mean SESSION_CYCLE_DAY_FIRST_LAUNCH?

16   Q.   I'm sorry. I apologize. I'm going to say it very

17   precisely.

18   We're looking at SESSION_CYCLE_DAY_FIRST_LAUNCH. That's

19   one of the custom app events that Flo named; correct?

20   A.   Correct.

21   Q.   And they -- they're -- when we say Flo, we mean their

22   programmers who are programming their source code. They named

23   it that; right?

24   A.   That's correct.

25   Q.   And then Flo's programmers, just like every other app

1 developers, programmers, then decided what parameters would be

2 associated with the custom app event named; right?

3 A.   Yeah.   We already established that the -- Flo names the

4 custom app events.

5 Q.   Okay.   So when Flo was doing the naming, did they tell

6 Meta -- or strike that.

7 Have you seen any evidence that anybody at Flo in any way

8 communicated to Meta what the heck

9 SESSION_CYCLE_DAY_FIRST_LAUNCH means?

10 A.   I think it's pretty obvious when they received data that

11 came from a known period tracking app that it has this with

12 parameters that have cycle day and an integer, and then cycle

13 day -- was it type? -- which then explains, you know, ovulation

14 or after fertility window.   You don't need a Ph.D. in computer

15 science to understand that that's referring to someone's

16 ovulation cycle.

17 Q.   Is that a "no" to my question?

18 A.   I think it -- at face value, it's obvious that this would

19 have been -- what this -- what this is.

20 Q.   Okay.   I'd like you to answer my question.

21   MR. CLUBOK: And I could have the court reporter

22 repeat back my original question, please.

23   THE COURT: We're not going to do that.   You can ask

24 it again if you'd like.

25 \\\

1   MR. CLUBOK: Okay. That fine. I'm going to have to

2 paraphrase, though, so I apologize if I get it slightly wrong.

3 BY MR. CLUBOK:

4 Q.   The gist of what I'm trying to ask you, sir, just straight

5 up, straight answer, is: Have you seen any evidence in all the

6 work you've done in this case that there's actually a human

7 being at Meta who ever was told what

8 SESSION_CYCLE_DAY_FIRST_LAUNCH even meant? Yes or no?

9 A.   I know that Meta employs people to do that. I don't know

10 specifically the name -- you know, whether one individual in

11 particular in the case of Flo did that. But I understand how

12 the SDK works and how Meta uses the data and how their business

13 functions.

14 Q.   You know that Meta employed someone who tried to crack the

15 code of what SESSION_CYCLE_DAY_FIRST_LAUNCH -- that's what your

16 testimony just was?

17 A.   My testimony is that Meta employs people to make sense of

18 all the analytics data that they receive so that they can then

19 use in it their advertising business.

20 Q.   Back to my first question. Straight up, have you seen any

21 evidence that Meta ever tried to crack the code of what

22 SESSION_CYCLE_DAY_FIRST_LAUNCH means? Yes or no?

23 A.   Again, I haven't seen anyone who I know at Meta who

24 specifically has decompiled or reverse-engineered or whatever

25 for this app in particular. I don't know what internally

1   individuals at Meta do or do not do during their day.

2   Q.   Okay. All right. And so -- okay. What exactly did

3   Flo and -- we had all these other question marks; right?

4   And so what I now want to know is what did Flo ask its

5   users that generated any parameters, if any, that were sent to

6   Meta in connection with SESSION_CYCLE_DAY_FIRST_LAUNCH?

7   I would like you, as specifically as possible, if you

8   know, to tell us what those questions supposedly were.

9   A.   Again, that's based on all the questions that the user

10   answered there, and this is the other half of the conversation.

11   So when Flo -- the app -- after the user, they tell the app

12   their medical information, the app then makes predictions.

13   That's the other half of the dialogue. That goes back to the

14   user but also Meta is recording that and sending it off.

15   So we saw, for instance, in that calendar view, the main

16   app view, where it says like six days to ovulation. That's the

17   other half of the conversation that Meta is recording.

18   Q.   Yeah, we'll get to the other half of the conversation.

19   Just like we did with all the others, I want to start with what

20   Flo asked.

21   Like -- look. Meta's supposedly recording all this;

22   right? Have you seen anywhere in Meta's records that they know

23   what the heck Flo asked its users in order to generate data

24   with respect to SESSION_CYCLE_DAY_FIRST_LAUNCH? Have you seen

25   any data that shows that Meta has any idea what that means?

1   A.   Again, just looking at the traffic without any other

2   sources, I was able to determine what that meant, and so I

3   suspect people at Meta can probably do the same.

4   Q.   Yes, you claim you were able to determine, and we're going

5   to get to that.

6   So the starting point is just, plain and simple, tell this

7   jury, please, what did Flo ask its users to generate any

8   information that could be sent to any SDK provider associated

9   with SESSION_CYCLE_DAY_FIRST_LAUNCH? And please, be as

10 specific as possible with the exact questions.

11 A.   Okay. So Meta asked --

12 Q.   I'm sorry. You said Meta asked? Meta didn't ask --

13 A.   I'm sorry. I meant Flo asked --

14 Q.   Okay. Slow down --

15   THE COURT: Can you let him answer the question. Just

16 stop. Let him answer the question.

17   Go ahead. Flo asked.

18   THE WITNESS: Flo asked "When did your last

19 period start?" Then Flo asked, "On average, how long is your

20 period?" Then Flo asked, "On average, how long is your cycle?"

21 Then Flo asked, "What year were you born?"

22   And then, based on that information, Flo said "We believe,

23 you know, you're X number of days into your cycle, and this

24 means Y." And that half of the conversation, based on the

25 questions that the user had just answered, is what gets

1   transmitted to Meta.

2   **BY MR. CLUBOK:**

3   **Q.**   Okay. I'm -- let's stop. Just the side of the question

4   that's Flo.

5   And you said -- I think what you did was you repeated the

6   first four questions and you said those were the four questions

7   that Flo asked that generates the parameters, if any, that get

8   transmitted with SESSION_CYCLE_DAY_FIRST_LAUNCH; correct?

9   **A.**   I'm sorry. I didn't get the whole thing. I'm reading it

10   off her screen.

11   **Q.**   It's the first four --

12   **A.**   Can you just repeat the first part.

13   **Q.**   I think what you just said -- I just want to make it clear

14   for the jury -- Flo asked these first four questions: When did

15   your last period start, on average, how long is your period, on

16   average, how long is your cycle, and also "What year were you

17   born?

18   And those were the questions Flo asked in connection with

19   SESSION_CYCLE_DAY_FIRST_LAUNCH, in your opinion; correct?

20   **A.**   Yes.

21   **Q.**   Okay. So I had prepackaged the first three. I didn't

22   expect you to say the fourth one, but I'm going to add what

23   year with my terrible handwriting.

24   Okay. So it's -- we've got it up now. The first three

25   questions, plus one year, you're saying, was what they asked.

1   Now, for Gamino, Chen, Wellman, we've already established

2 that we don't know what their answers were to any of those

3 questions; correct?

4 A. Yes.

5 Q. Okay. Now let's go to the hypothetical. We don't know

6 when any of the three people actually here answered. But what

7 would -- what would be sent, according to your opinion, by Flo

8 in response to these three questions? Or four questions, I

9 should say. In response to all four of those questions.

10   What gets sent with respect to SESSION_CYCLE_DAY or

11 FIRST_LAUNCH?

12 A. I'm not entirely sure what you're asking exactly.

13 Q. So --

14 A. So the users answer these four questions. That's part of

15 the conversation.

16 Q. Yeah. Those four questions.

17   In this case, we don't know what they told Flo, let alone

18 what Meta would have known about it?

19 A. They knew at some point; right.

20   THE COURT: Okay. We need to do this in a

21 question-and-answer. Okay? Ask a question, give an answer.

22 Not just sort of Starbucks-style dialogue. Just get it done.

23 BY MR. CLUBOK:

24 Q. I'm trying to find out --

25   THE COURT: Just ask a question.

1   BY MR. CLUBOK:

2   Q.   What -- is it your opinion that something was recorded by

3   Meta in connection with SESSION_CYCLE_DAY_FIRST_LAUNCH for

4   Ms. Gamino, Ms. Chen, or Ms. Wellman?

5   A.   I mean, it's not just my opinion; it's empirical. You

6   know, we've seen the traffic logs. So Facebook records when

7   the user answers those questions. Facebook records when the

8   user doesn't know the answer to those questions. And then

9   Facebook records, you know, the user's goal, and the other half

10   of the conversation, what the app comes back with to tell the

11   user -- in this case, you know, whether they're ovulating,

12   about to have their period or whatnot.

13   Q.   Okay. What was the answer that Facebook got for these

14   three plaintiffs, the class representatives? What was the

15   answers Facebook got for any of them -- or for all of them?

16   A.   We went over that on direct --

17   MR. LEVIS: Objection.

18   THE COURT: Do you understand the question?

19   THE WITNESS: Yeah, I think so.

20   THE COURT: Go ahead, then.

21   THE WITNESS: I guess I'm only confused in that I

22   thought we already answered this on direct where we showed

23   exactly what Facebook receives when a user answers these

24   questions.

25   \\\

1   BY MR. CLUBOK:

2   Q.   Well, I'm sorry. For Ms. Gamino, if a user -- if you

3   don't know, don't know, don't know, if you have some

4   unknowns -- for Ms. Gamino, Ms. Chen, and Ms. Wellman, are you

5   able to give an expert opinion about what, if anything,

6   Facebook ever received with respect to

7   SESSION_CYCLE_DAY_FIRST_LAUNCH?

8   MR. LEVIS: Objection. This relates to one of our

9   motions in limine, which is -- if we could mention it briefly?

10   THE COURT: Just go ahead -- do you understand --

11   THE WITNESS: Yeah. I was just going to say like I

12 don't know what any individual plaintiff entered.

13   Again, I'm just telling you how the app functions

14 generally and that it would function the same for every user.

15 BY MR. CLUBOK:

16 Q.   Okay. So for the three actual plaintiffs, the answer is

17 you don't know; correct?

18 A.   I don't know what any one individual entered into the app,

19 no.

20 Q.   How about just for any person, any person who would have

21 used the app at any time? Fair to say that if they put

22 "unknown" or "I don't know" for any of their answers, then what

23 would -- strike that.

24   You said that the data that's transmitted relates to these

25 first four questions; right?

1   A.   Yes.

2   Q.   So if a user put "I don't know" in response to any of

3   those four questions, what would be transmitted to Meta?

4   A.   If they put "I don't know," then it sends "unknown" for

5   that question. But just for that one question.

6   Q.   It actually sends the word "unknown"?

7   A.   As you've labeled in those top three rows.

8   Q.   Actually, for SESSION_CYCLE_DAY_FIRST_LAUNCH, it sends a

9   0, doesn't it?

10 A.   I would have to go back and check.

11 Q.   Okay. If someone does answer all those questions and they

12 give the exact answers, isn't is true that Flo performs some

13 sort of calculation or prediction and that's what they send out

14 to SDK providers?

15 A.   Sure. But I mean, by the same token, I think that people

16 would still be concerned if information about a misdiagnosis,

17 right, is shared with third parties. It's still medical

18 information that most people would think would be private.

19 Q.   Yeah, but it's not Meta recording it; right?

20 A.   Well, Meta is recording the conversation the user is

21 having with Flo, and in this case, if Flo gives an inaccurate

22 response based on the data that's entered, yeah, a record of

23 that response is going to be shared with Meta.

24 Q.   Sir, let's get back to your original statement that you

25 claim you know what SESSION_CYCLE_DAY_FIRST_LAUNCH means. You

1 were able to figure it out, you think.

2   Do you have in front of you your report -- well, first of

3 all, your report from -- your first report from 2023.

4   Do you have that in front of you?

5   THE COURT: We're not reading the report into the

6 record.

7   MR. CLUBOK: No, sir.

8   THE COURT: Well, what are you doing with it?

9   MR. CLUBOK: I just want to ask him a question: Did

10 he ever define what SESSION_CYCLE_DAY_FIRST_LAUNCH is anywhere

11 in his first report?

12   THE COURT: Just ask him.

13 BY MR. CLUBOK:

14 Q.   Did you ever do it?

15 A.   I would have to check, but given that, you know, the

16 reports were revised and there was also a rebuttal report, it's

17 probably in there somewhere, but it's also certainly in the

18 traffic logs which were introduced as exhibits, so --

19 Q.   Right --

20 A.   -- you clearly have, you know, examples of that data being

21 shared with Meta.

22 Q.   Okay. But I would represent you did try to define it in

23 your second report, and isn't it true that in your second

24 report, you explained that cycle day set to 16 --

25   THE COURT: Stop. I said don't read it.

1   MR. CLUBOK: I'm sorry. I apologize.

2   THE COURT: Don't mention the report. Ask a question.

3 Is it your opinion that? Did you find that? Was it your

4 conclusion that?

5   That's how the exam should go.

6   Ladies and gentlemen of the jury, there's just a rule

7 against reports. There's nothing special about this case.

8 They just don't come in. Okay? So there's no mystery here.

9 Just put it out of your mind. They all do some work in the

10 background. It's not here in front of you today.

11   Please, just ask the questions the right way.

12 BY MR. CLUBOK:

13 Q. You've testified that it would be really easy for somebody

14 to figure out what's meant by SESSION_CYCLE_DAY_FIRST_LAUNCH,

15 or words to that effect; right?

16 A. Yes.

17 Q. Isn't it true that in your first -- strike that.

18   Isn't in true that in your second report, you explained it

19 incorrectly?

20 A. I honestly -- I don't think so. I would have to look at

21 the report.

22 Q. Okay. Can you take a look at page 439. Don't show it,

23 please, to anyone. Page 49, footnote 110.

24   THE COURT: Next question. We're not going to do

25 this. Next question.

1   MR. CLUBOK: Okay.

2   THE COURT: Disregard that last question.

3   Go ahead.

4 BY MR. CLUBOK:

5 Q.   Yeah.

6   Let's get to CHOOSE_GOAL then.

7   With respect to CHOOSE_GOAL, we do know what the question

8 Flo asked is, which is "How can we help you"; right?

9 A.   Yes.

10 Q.   So for Ms. Gamino, do we know what she said?

11 A.   I've already said repeatedly I don't know what any one

12 individual plaintiff did or did not do with the app.

13 Q.   For Ms. Chen and Ms. Wellman, do the same thing.

14   MR. LEVIS: Objection. This is inaccurate.

15   THE COURT: That's okay. Let's get through it. Go

16 ahead.

17 BY MR. CLUBOK:

18 Q.   Okay. Do you know what was sent to Facebook for any of

19 those three individuals?

20 A.   I think I just answered that.

21 Q.   And do you know what was -- could you -- do you know what

22 was sent to Facebook for any person in the class, any specific

23 person in the class?

24 A.   I mean, again, you know, my analysis was what the app

25 sends in response to different inputs.

1   In terms of what any one individual actually entered into

2 the app, that's well beyond what I was supposed to do.

3 Q.   Okay. Let's talk about the plus menu events.

4   Let's turn to Slide 5 in your slides.

5   Now, these questions are not part -- whatever is being

6 asked and answered here is not part of the 12 at-issue custom

7 app events; correct?

8 A.   I believe that's the case, yes.

9 Q.   Okay. And if somebody -- for instance, you've got some

10 highlightings and some potential answers that I guess you are

11 hypothesizing someone could have made. Like with respect to

12 lifestyle, looks like you may not have chosen anything --

13   MR. LEVIS: Objection.

14   THE COURT: Let him finish his questions.

15 BY MR. CLUBOK:

16 Q.   Is that correct?

17 A.   That's correct.

18   THE COURT: There's no question yet. He's just making

19 a comment.

20   Finish your question.

21 BY MR. CLUBOK:

22 Q.   It's correct that you did not choose anything for

23 lifestyle; correct?

24 A.   That's correct. In that screenshot.

25 Q.   Did you test what happens if a user of Flo Health had

1   chosen either weight or sleep or nutrition or steps or anything

2   like that?

3   **A.**   I probably played around with that in the app when I

4   tested it, but I suspect since it -- I suspect it was not

5   reporting the raw value for weight, sleep, and that stuff,

6   which is why we're not focused on that.

7   **Q.**   I'm sorry. It was not reporting. What do you mean? To

8   Meta?

9   **A.**   Yes.

10   **Q.**   Okay. So the SDK surely wasn't recording whatever it was

11   a Flo Health user punched in or clicked on in connection with

12   lifestyle as you display in Slide 5 --

13   **A.**   Well, I mean, again, like the other ones, it reports that

14   the user did interact with that and selected one of the

15   options. But, yeah, I believe it didn't specify which of the

16   lifestyle items and what, you know, optional parameters might

17   accompany those.

18   **Q.**   Okay. So for sex and sex drive, there's something that's

19   really faded and hard to see, but on the very left, one of the

20   options is "didn't have sex."

21   **MR. CLUBOK:** Maybe we can blow that up, please.

22   **BY MR. CLUBOK:**

23   **Q.**   So under sex and sex drive, as you've displayed, how the

24   Flo Health app might -- would have looked back in the day, the

25   first option in the left was "didn't have sex"; right?

1   A.   In this screenshot, but we talked about that. There were

2   several earlier versions where the only options were

3   "protected" versus "unprotected," and they only added the

4   "didn't have sex" in this later version.

5   Q.   Right. We'll get to those.

6   And by the way, Flo Health made the choice to have two

7   options, five options, ten options, or whatever options; right?

8   A.   Sure, yes. Flo Health designed this screen.

9   Q.   Okay. So for sex and sex drive on the screen that you

10 showed on Slide 5, there's multiple options that range from

11 "didn't have sex" to "protected sex" to "unprotected sex" and

12 some other options; right?

13 A.   In this version, yes.

14 Q.   And in this version, then -- first of all, none of the

15 answers were being transmitted to Meta by Flo; correct?

16 A.   Well, like, I disagree with that statement, because,

17 again, when the options were just protected versus unprotected

18 sex, either of those options communicates that the user had sex

19 on that day.

20 Q.   Yeah, but let's stick to the one you put up on your screen

21 in Slide 5, the example you showed that we're looking at right

22 now on Slide 5 of your demonstratives where there's multiple

23 options that Flo gave for sex and sex drive. Fair to say that

24 none of those answers went to Meta -- none of those answers

25 were sent to Meta by Flo; correct?

1   A.   These are plaintiffs' counsel's demonstratives, since we

2   were splitting hairs on that at the beginning.

3   Yes. Yes.

4   Q.   I'm sorry. These demonstratives were created by the

5   plaintiffs' counsel, not by you?

6   A.   Well, I mean, we -- I mean, there are screens -- there are

7   more additional screenshots. Focusing on these and not putting

8   the other one that showed protected and unprotected sex.

9   Q.   Sorry. You're saying that plaintiffs' lawyers made the

10   decision about which shots to show or did you make the

11   decision?

12   A.   I mean, it was an iterative process. But what do you

13   mean?

14   Q.   Who picked the slides to put up?

15   A.   I made all these screenshots.

16   Q.   And you chose to put the image up which we're looking at

17   now, which is Slide 5, that showed at least five options for

18   sex and sex drive; correct?

19   A.   Yes. I would have also have liked to show the

20   demonstrative of the protected versus unprotected when that was

21   an option, but that was not my decision.

22   Q.   With what was shown, fair to say that any of these

23   answers, no matter what they were, for anybody who used the

24   Flo Health app, Flo did not send those answers to Meta;

25   correct?

1   A.   Again, that's where I disagree, because indicating that

2   you had had sex on a particular day, I think people would

3   consider that answering the question. Yeah, they didn't --

4   they didn't copy --

5   You know, they didn't record the answer with the

6   granularity of whether it was protected or unprotected if the

7   user chose one of those options when those were the only two

8   options. But I feel like just communicating that the user had

9   sex on that day is sort of the -- is communicating.

10 Q.   We'll come to the one that has just two options. I just

11 want you to please focus on this one that has five options --

12 A.   Yes.

13 Q.   -- and one of those options is "didn't have sex"; right?

14 A.   Correct.

15 Q.   So whether a person didn't have sex, did have sex,

16 unprotected or not or whatever, none of that information was

17 transmitted to Meta in connection with the Flo Health user who

18 was working off an -- a version that looked like the one you've

19 got up here at Slide 5 of your demonstratives; correct?

20 A.   In this particular version, that's correct.

21 Q.   And Meta sure as heck didn't record this conversation;

22 right? I asked you before if Flo transmitted this information

23 to Meta, but Meta certainly wasn't back at the home base

24 recording this; correct?

25 A.   I mean, Meta records that the user responded to this

1   question.

2   Q.   They didn't record the actual response ranging from didn't

3   have sex, did have sex, protected, not protected? Meta has no

4   idea of what the answer is; right?

5   A.   In this version, yes.

6   Q.   And pretty much for everyone in the world, it's true at

7   any moment they either did have sex or didn't have sex; right?

8   A.   Yes, that's true.

9   Q.   Okay. So Meta learned for anyone who did punch this, that

10   they either did or didn't have sex, that's what Meta learned --

11   that's the sensitive information they learned in connection

12   with this particular version?

13   A.   In connection with this particular version, yes.

14   Q.   Okay. And the same goes for "how are you" and "log

15   symptoms" and lifestyle and all these other super personal

16   questions? Meta never got the answers in connection with --

17   they never got the answers from Flo in connection with any of

18   these questions that you've got up here on your Slide 5;

19   correct?

20   A.   That's correct.

21   Q.   And Meta surely didn't record the answers? It's not like

22   they didn't need Flo to send it because they had some kind of

23   recording or listening device or spyware; right? That didn't

24   happen?

25   A.   I mean, I would argue it's spyware, but...

1 Q.   Yeah, we'll get to that. I know you would, and your

2 plaintiffs -- the plaintiffs' lawyers who hired you said that

3 in their opening, and we'll get to that.

4   But fair to say that Meta is not recording the answers to

5 any of these questions for the version of the app that you've

6 got up on Slide 5; correct?

7 A.   That's correct.

8 Q.   All right. Now let's talk for just a minute about that

9 version you keep talking about that there was an earlier

10 version that supposedly only had the option of either sex or --

11 what were the options you claim?

12 A.   It was only protected versus unprotected sex.

13 Q.   Okay. So when did Flo -- and that was Flo's choice at

14 that time, whenever they first had it like that; right?

15 A.   Yeah. Again, Flo designed this screen.

16 Q.   What was the last time they stopped using just the two

17 options and added all the options so it became sex or not sex?

18 What was the date that they changed it?

19 A.   I don't remember off the top of my head, but I do remember

20 documenting it in my report.

21 Q.   Fair to say it was before Ms. Gamino, Ms. Chen, or

22 Ms. Wellman ever used the app; isn't that true?

23 A.   I honestly don't know whether that's true or not.

24 Q.   Well, you honestly told this jury or -- that it happened,

25 and you kept bringing it up every time I asked you about the

1   thing that you actually showed us.

2   Isn't it true that that was just a very early version of

3   the app for the first couple of months?

4   A.   I don't -- I would need to go back to actually check the

5   chronology, which I have documented in my report.

6   Q.   Okay. But it wouldn't surprise you to know that whenever

7   Flo made the decision to change it from that to what you

8   displayed, that was before Ms. Gamino, Ms. Chen, or Ms. Wellman

9   ever first launched the app; correct?

10   A.   I think I've answered this several times. Again, I've

11   documented it in my report. I don't remember the chronology of

12   when they made the change.

13   Q.   Okay. So you're certainly not trying to sit here and tell

14   this jury that Ms. Gamino, Ms. Chen, or Ms. Wellman or anybody

15   in the world who used the app after a date that one of them

16   used the app, had that version that only had two options that

17   you've kept bringing up; is that correct? Is that correct?

18   MR. LEVIS: Objection.

19   THE WITNESS: What I'm -- yeah, that's right. There's

20   an objection. Okay.

21   No. What I'm trying to explain to the jury is that this

22   screenshot doesn't actually paint the complete picture. So in

23   addition to sharing whether you're pregnant, whether you're

24   ovulating and all of that other information, for a period of

25   time they were also collecting whether or not you had sex on a

1 certain day.

2 **BY MR. CLUBOK:**

3 **Q.**   Yeah, but this screen paints the complete picture for the

4 actual live plaintiffs who came here and testified, Ms. Gamino,

5 Ms. Chen, and Ms. Wellman? This screen 5 does paint the

6 complete picture; right?

7 **A.**   I don't know what versions of the app they used during

8 which time periods.

9 **Q.**   You certainly aren't trying to tell this jury that it's

10 your opinion that Ms. Gamino, Ms.Chen, and Ms. Wellman or

11 anybody who used the app on dates starting with the earliest of

12 them would have ever seen that two-option version that you kept

13 bringing up; is that correct? Yes or no?

14 **A.**   Again, all that I'm saying is there was a period of time

15 where, in addition to the other medical information that was

16 being reported, so was whether or not the user had sex on a

17 certain day. And, yes, that changed. They changed the screen

18 to add the "didn't have sex" option so that that information

19 would no longer be immediately revealed.

20 **Q.**   Yeah, that's --

21   **THE COURT:** We're going to take our afternoon break.

22 We'll be back at a little bit after 1:15.

23   **THE COURTROOM DEPUTY:** All rise.

24   (The jury leaves the courtroom.)

25   (Proceedings were heard out of the presence of the jury.)

1   (Recess taken at 12:56 p.m.)

2   (Proceedings resumed at 1:23 p.m.)

3   THE COURTROOM DEPUTY: All rise.

4   (Proceedings were heard out of the presence of the jury.)

5   THE COURT: Okay. Let's bring them in.

6   THE COURTROOM DEPUTY: Okay.

7   (The jury enters the courtroom.)

8   (Proceedings were heard in the presence of the jury.)

9   THE COURTROOM DEPUTY: You may be seated.

10   THE COURT: Okay. Go on, please.

11   MR. CLUBOK: Thank you.

12   Your Honor, during the break, we marked the poster board

13 that we've been working on just for demonstrative purposes as

14 Trial Exhibit 1273, and we've taken a picture of it, so I'm

15 hoping we can put it up on the screen now. There it is. And I

16 can remove the board.

17   THE COURT: Okay. This is just a demonstrative. It's

18 not in evidence. Just to try to help you follow the testimony.

19   All right. Go ahead.

20 BY MR. CLUBOK:

21 Q. Sir, we've taken a picture of the board that we worked on,

22 which has been marked as Exhibit 1273 for demonstrative

23 purposes. And I just -- I don't want to go through the whole

24 thing, but is it fair to say that if I did go through the whole

25 thing with respect to Ms. Meigs and Ms. Frasco, the other two

1 plaintiffs in this case who have claims against Flo, fair to

2 say you wouldn't have any more specific information about

3 either of those two than you did about Ms. Gamino, Ms. Chen,

4 and Ms. Wellman; correct?

5 A.   I think we've repeatedly established that I don't know

6 what any individual plaintiff did or did not enter into the

7 app.

8 Q.   And you also haven't seen any evidence that Facebook

9 actually recorded any of these specific answers for Meigs and

10 Frasco any more so than Gamino, Chen, and Wellman; correct?

11 A.   Any more so? I mean, they recorded specific answers, yes.

12 But, again, there are no individual issues, and the app behaves

13 the same for every user.

14 Q.   Right. And you haven't seen any indication that Flo

15 transmitted additional information for Meigs or Frasco as

16 opposed to Gamino, Chen, and Wellman; correct?

17 A.   They would have transmitted largely the same information.

18 Q.   Okay. Thanks.

19   I want to talk to you very briefly about -- back to

20 your -- the discussion about what Meta said with respect to

21 matching.

22   MR. CLUBOK: And if we could put up the last slide

23 that I think you used on direct examination. I believe it's

24 Slide 31. There it is.

25 \\\

1 BY MR. CLUBOK:

2 Q.   And this is one where the lawyer who hired you had you

3 read this statement into the record?

4 A.   Uh-huh.

5 Q.   And while he did that, he had showed, as you read it, I

6 think the yellow highlighting was on there like pretty -- at

7 least the way the version they gave us was up there as you read

8 the whole thing, the white part; right?

9 A.   Mm-hmm.

10 Q.   So I just want to focus on this.

11   This -- this document was provided to you and the lawyers

12 who hired you by Meta in this case; correct?

13 A.   I believe so, yes.

14 Q.   And it was years ago that Meta made this statement in this

15 case; right?

16 A.   I don't know when this was made exactly, but, I mean, it's

17 still -- it's an accurate statement today from what I've

18 studied how Facebook collects data. This is still very much

19 the case.

20 Q.   Sure. Actually, it's been the case about Meta for years;

21 right?

22 A.   Sorry. What about Meta for years?

23 Q.   It's been the case for Meta for years. You said it's --

24 A.   Yes, it's been the case that Meta collects this data for

25 the purpose of identifying users, yes.

1   Q.   And for years, just like in on -- Slide 31, Meta has

2   openly told the world that that's what it does; correct?

3   A.   I would disagree with that very much.

4   Q.   Well, when you --

5   A.   I mean, currently, like right now, to give an example of

6   that, I was just visiting a colleague last month -- actually,

7   one of the AppCensus cofounders, who's based in Madrid. He's a

8   professor there. He just released a big finding where they

9   found that Meta was secretly exploiting a browser loophole to

10 connect data with the Facebook app so when you visit a mobile

11 app --

12   MR. CLUBOK: Objection, Your Honor. This goes

13 beyond --

14   THE COURT: Let him answer. You asked the question.

15   Go ahead and answer.

16   THE WITNESS: So when you go to a mobile website in

17 your mobile web browser, that was exploiting -- when websites

18 had Facebook's tracking code on there, it was exploiting a

19 security bug in the browser which then allowed Facebook's

20 tracking code to communicate with the Facebook app install on

21 your phone, which would then try -- you know, the purpose of

22 that was to try and identity the user as they visit different

23 non-Facebook websites.

24   And so, yeah, Meta collects all sorts of data like this

25 specifically for the purposes of identifying users. And a lot

1 of that is not apparent to users, so in this case, Google

2 threatened to kick them out of the Play Store because they were

3 exploiting a security vulnerability to collect users' data.

4   **MR. CLUBOK:** Move to strike.

5   **THE COURT:** Denied. Go ahead.

6 **BY MR. CLUBOK:**

7 **Q.**   Meta said in -- on Slide -- in the information it provided

8 years ago in this case that when the Flo app sent app events

9 data to Meta, it also sent Meta information corresponding to

10 the app events for the sole purpose of matching the individuals

11 associated with the Flo app's app events data to individual

12 Facebook users; correct?

13 **A.**   Yeah. This is explaining that the additional -- the

14 extraneous, you know, personal information is used to identify

15 the user so that they then know the identity of the person who

16 corresponds to the different app events that Meta has received.

17 Yes, that's correct.

18 **Q.**   Right. And not only is Meta not denying that in this

19 case; Meta is laying that out? That's the way it works; right?

20 **A.**   I disagree with that because Meta is claiming this is

21 deidentified information when that's clearly not the case, when

22 it's used specifically to identify people. It cannot be

23 deidentified information.

24 **Q.**   Where did Meta claim that?

25 **A.**   Isn't that Meta's main defense? I mean, that's one of the

1   defenses that's been brought up that this is somehow

2   deidentified or anonymous data.

3   Q.   When did Meta claim that?

4   A.   It's -- I've been sitting here since Monday and it's come

5   up several times that this has been referred to as

6   "deidentified data."

7   Q.   Right. When did Meta claim that?

8   A.   It's possible that Flo made that representation, but it is

9   very clear that Meta is not -- you know, does not believe this

10   is deidentified data, because here you have it in this

11   document, very specifically using the data to identify people.

12   Q.   Right. It's very clear that Meta is not claiming that

13   because this is the sworn statement that Meta made years ago in

14   this case, that they acknowledged and they -- and I also -- we

15   all agreed would be shown to the jury; correct?

16   A.   Yes. It's clear in this case that Meta -- you know,

17   people involved in this case who have subpoena power have

18   learned this. The general public doesn't really understand

19   this. Meta's -- you know, certainly Meta's business customers

20   understand how the data is used. That's, you know, why they go

21   to Meta to serve their ads because they know Meta collects this

22   data for targeting ads. But the public, by and large, does not

23   understand how this data gets used.

24   This is why, for instance, I've mentioned this to lots of

25   journalists over the years. This comes up frequently where,

1   you know, people say: Oh, my phone is secretly recording all

2   my conversations. That's why I get all of these, you know, ads

3   based on things that I said.

4   That's absolutely not true; it's a conspiracy theory. But

5   the reason why people think that is based on all the ad

6   targeting that happens. So if they connect all of your

7   devices, you might search for something on one device and then

8   see ads about that on another device. We talked about

9   cross-device tracking.

10   But, yeah, by and large the public doesn't really

11   understand the technical details of what Meta collects and how

12   they use that data.

13   Q.   You said when you were on this page how -- you said it's

14   not unusual Facebook has -- I couldn't quite get the words you

15   said, something like Facebook has pages to tell its customers

16   or advertisers about this device matching that is conducted;

17   right?

18   A.   Yeah. The documents that are aimed at, you know,

19   marketers and also developer docs. I would -- I would probably

20   gamble money that no one on the jury has read Meta's developer

21   docs or pages for advertisers. And, you know, most of the

22   general public is not familiar with this.

23   Q.   Would you bet that no one on the jury has ever advertised

24   on Facebook?

25   A.   I would bet that they probably haven't read the developer

1 docs.

2 Q.   Isn't it -- you keep talking about Meta's customers. How

3 many -- by customers, you mean advertisers; right?

4 A.   I mean advertisers.

5 Q.   How many advertisers does Meta have?

6 A.   I have no idea. That's a question for Meta.

7 Q.   Right. And for all of its advertisers, Meta explains how

8 this works, makes it publicly available, its terms; is that

9 true? That's what you said?

10 A.   Well, I mean, yes and no. And we've already established,

11 right, they have the terms that say "Don't send us data if it's

12 a child-directed app, you know, an app that collects health

13 information, an app that, you know, collects financial

14 information." And they certainly know that no developers are

15 paying attention to that.

16 Q.   And how many Facebook users are there in the U.S. that

17 Meta has explained that they collect device identifiers to? Do

18 you know?

19 A.   Sorry. Can you repeat that?

20 Q.   How many Facebook users are there in the United States to

21 which Facebook has a publicly available page displaying how

22 device identifiers are collected and used? Do you know?

23 A.   They have -- yes, they have publicly available pages, but

24 it's unlikely most consumers have ever read many of the pages

25 that explain this stuff.

1   Q.   IDFA, that was created when?

2   A.   2013.

3   Q.   By?

4   A.   Apple.

5   Q.   And literally every single app in the --

6   **THE COURT:** Can we take this exhibit down?

7   **MR. CLUBOK:** Take it down? Oh, I'm sorry. Thank you,

8   Your Honor.

9   **BY MR. CLUBOK:**

10   Q.   Every single app in the Apple App Store has at least had

11   IDFAs; right?

12   A.   Not necessarily.

13   Q.   Every single app in the Google collection had IDFAs?

14   A.   What do you mean, apps having IDFAs?

15   Q.   I'm sorry. IDFAs are transmitted by apps commonly in the

16   Apple App Store; correct?

17   A.   It is the case that there are many apps that transmit

18   those identifiers, yes. Not every app, though.

19   Q.   But most; right?

20   A.   I'm not even sure about most.

21   Q.   Okay.

22   You've been paid a lot of money in this case by the

23   plaintiffs' lawyers; is that right?

24   A.   I'm pretty sure defense is being paid more.

25   Q.   Have you been paid a lot of money in this case? Yes or

1   no?

2   **A.**   Yes. Yeah. I mean, it's -- I -- I've been very lucky.

3   As an internationally recognized privacy expert, I get

4   frequently called by regulators, plaintiffs' attorneys, and

5   even defense attorneys, and I'm fortunate that I get to pick

6   and choose and take the cases that I want. And apparently the

7   market has decided that that's how much the time -- my time is

8   worth. And so, yes, it's a lot of money.

9   **Q.**   That's an answer you rehearsed with these lawyers; right?

10 **A.**   I've never heard that answer.

11 **Q.**   You've given that answer before, very similar to that in

12 lot of depositions, haven't you?

13 **A.**   I have, yeah.

14 **Q.**   Okay. What's the rough total amount that these

15 plaintiffs' lawyers have paid you to date for the work you've

16 done in connection with this case?

17 **A.**   This case has been going on for -- what? -- four-years

18 now? I have no idea what the total amount is.

19 **Q.**   You have no idea how much these lawyers have paid you for

20 all the work you've done that led to you testifying in front of

21 the jury; correct?

22 **A.**   I mean, I could go through my invoices. I don't have them

23 in front of me.

24 **Q.**   You have no idea? It could be a hundred thousand, it

25 could be a million, it could be --

1   **A.**   No --

2   **Q.**   -- 50 million?

3   **A.**   -- I think it's less than -- a lot less than that.

4   **Q.**   What is it?

5   **A.**   I suspect on this case it's less than a hundred thousand,

6   but, again, over four years, I don't know.

7   **Q.**   You suspect in this case from the time you started 'til

8   today you've been paid less than a hundred thousand dollars?

9   **A.**   Again -- well, I've already stated multiple times I don't

10   know the exact amount. We're talking about a four-year period

11   of time.

12   **Q.**   Okay. Is Exhibit 771 in your binder?

13   I have extra copies if it's not.

14   **A.**   Okay. I was pretty close. It looks like I was pretty

15   close.

16   **Q.**   Exhibit 7 --

17   **THE COURT:** Is this admitted?

18   **MR. CLUBOK:** No. I'm going to --

19   **THE COURT:** Hold on for a moment. I've got to take a

20   look at it. I don't have it.

21   **THE WITNESS:** Do you want to see my copy?

22   **THE COURT:** Thank you, no.

23   Okay. Any objection to 771?

24   **MR. LEVIS:** No.

25   **THE COURT:** All right. 771 is admitted.

1   (Trial Exhibit 771 received in evidence.)

2 **BY MR. CLUBOK:**

3 **Q.**   Okay.   771 is a compilation of the invoices you've

4 actually provided thus far to any of the defendants, and it

5 runs through May of 2023; correct?

6 **A.**   Yes, that appears to be the case.

7 **Q.**   It's now July of 2025, two years later. And by the way --

8 strike that.

9   In May of 2023, you had -- you finished your first report

10 in this case; right?

11 **A.**   I -- I assume -- yeah, sure.

12 **Q.**   Okay. And you've since done three other reports; right?

13 **A.**   Yup.

14 **Q.**   And you've given at least two depositions; right?

15 **A.**   Yup.

16 **Q.**   And you did all the work to prepare to come here today and

17 testify today; right?

18 **A.**   Yup.

19 **Q.**   And what's -- you surely have been paid way more than

20 $100,000 since then; correct?

21 **A.**   I don't know about way more, but, yes. Obviously, if I

22 was paid that in -- you know, through 2023, mid-2023, obviously

23 the number goes up.

24 **Q.**   And you can't give the jury an estimate of how much total

25 you've been paid since then; right?

1   **A.**   Again --

2   **Q.**   Is that yes or no?

3   **A.**   I already stated that.

4   **Q.**   Okay. And is there some amount of work that you've done

5   that you haven't even sent your bills to for the plaintiffs?

6   **A.**   I mean, we're here today; right?

7   **Q.**   Yeah. When was the last time you sent a bill?

8   **A.**   I honestly don't remember. Maybe a month ago.

9   **Q.**   Okay. And aside from this case, in the last five years,

10   you've been paid by these plaintiffs' lawyers for other cases

11   you're working on with them; right?

12   **A.**   Yep.

13   **Q.**   And the grand total -- can you give the grand total of all

14   the money you make from these plaintiffs' lawyers, whether it's

15   this case or other cases, over the last five years?

16   **A.**   I honestly -- again, I couldn't tell you. I've done --

17   you know, again, being a recognized expert in this, I get a lot

18   of requests for my time. I do a lot of work for the FTC, state

19   AGs, multiple plaintiffs' firms. Defense firms come to me as

20   well.

21   In terms of what one firm has paid me over the past

22   five years, four or five years, I honestly couldn't tell you

23   without actually looking up my invoices.

24   **Q.**   All right. It's possible the majority of your income is

25   coming, at this point, from plaintiffs' law firms; correct?

1   **A.**   That's probably true.

2   **Q.**   Okay. Sir, you're not an expert in machine learning in

3   this case; right?

4   **A.**   I am not testifying about machine learning.

5   **Q.**   So you're not providing any expert opinions in this case

6   about machine learning; correct?

7   **A.**   No, I'm not.

8   **Q.**   Sorry. I think that was a double-negative.

9   **A.**   Sorry.

10 **Q.**   It's okay.

11 **A.**   You are correct. I was not prepared to provide testimony

12 about machine learning.

13 **Q.**   Okay. And then my last question, if I can ask the

14 question correctly, I'll try to do it, and if there's a problem

15 with it, I'm going to have to follow up, but I'm hoping this is

16 the last one.

17   Sir, isn't it true that the presence -- the mere presence

18 of a given SDK is not determinative of whether or not sensitive

19 user data will be transmitted to the SDK developer or even

20 whether the SDK code will be executed at all? Yes or no?

21 **A.**   It's not a yes-or-no question. I mean, the presence of an

22 SDK is a signal that that SDK is present; right?

23   And if the SDK is functioning as intended -- for instance,

24 if you have an advertising SDK, one would expect, then, that if

25 that SDK were, you know, invoked, you know, called by the app

1   code, that, yes, it would then be triggered?

2   But certainly the presence by itself does not communicate

3   that. It's just highly correlated with it.

4   Q.   And the presence of an SDK doesn't even mean that it's

5   going to be executed or function in any way unless an app

6   developer triggers it; correct?

7   A.   It's a strong signal, though, because I don't know why an

8   app developer would insert the SDK code and then not use it.

9   Q.   Okay. I'm sorry. I do have to follow up on that

10   question.

11   When you talk about the developer inserting the SDK code,

12   you had a slide deck that you presented in the direct

13   examination, and I just want the jury to really be able to

14   drill down.

15   Can you point to anywhere in this slide deck that you

16   presented to the jury where there's the actual SDK code, the

17   so-called reusable code that Facebook makes freely available on

18   GitHub and for downloading -- can you point to where the actual

19   SDK code is anywhere in your direct examination slides that you

20   presented to the jury?

21   A.   In the direct examination slides? I mean, it's all over

22   the source code produced by Flo in this matter. And, in fact,

23   in the -- that slide deck, it shows the traffic captures, and

24   we went over the user agent string, which shows that it is, in

25   fact, the Facebook SDK that's responsible for those

1   transmissions.

2   Q.   Okay.

3   A.   And so that's pretty strong evidence that the Facebook SDK

4   was, in fact, present and transmitted the data.

5   Q.   Yeah, I didn't ask whether it was -- there was evidence it

6   was present. I just wanted to see if you showed the jury the

7   actual SDK code.

8   Did you display the SDK code for the jury during your

9   direct examinations --

10   A.   Which --

11   Q.   -- these slides on any page? Yes or no?

12   A.   Yes.

13   Q.   Which page?

14   A.   It was the one where it showed the com.facebook.appevent

15   function call to the log event function from within the

16   Facebook SDK.

17   Q.   Can you tell us which slide? Do you still have your deck

18   front of you?

19   A.   No.

20   Q.   Okay. Let's try Slide 10. Sorry -- strike this.

21   Before we get there, you're saying it's just on one slide,

22   the SDK code, if we could find it? Or is it on multiple

23   slides?

24   A.   I honestly don't remember. I didn't think this would be

25   an issue in contention.

1   Q.   Okay. Let's look through it, then. Let's just -- put it

2   to page 1.

3   A.   You're really going to argue there's no evidence that the

4   Facebook SDK was present?

5   THE COURT: Just wait for a question.

6   THE WITNESS: Okay.

7   THE COURT: Wait for a question.

8   What are we doing? Are we putting something up?

9   MR. CLUBOK: Yeah.

10   THE WITNESS: It's the one that shows the function

11   that starts com.facebook.appevents. That's where the SDK first

12   gets invoked by the Flo app developer.

13   BY MR. CLUBOK:

14   Q.   I want to know if you showed the actual code. You've

15   described SDKs as reusable code that can be downloaded and

16   reused or customized, and I just want to know if you actually

17   showed the jury what the actual code looks like.

18   Have you done that in your direct examination slides? Yes

19   or no?

20   A.   I don't believe that was in those slides, no.

21   Q.   Okay. And anywhere in the slides, did you show the jury

22   how the Flo source code -- strike that.

23   Then isn't it the case that every bit of source code that

24   you displayed to the jury in your slides, literally every

25   single keystroke, was typed by a Flo app developer and not by

1   anyone at Facebook? Isn't that true?

2   A.   I have no idea who typed what, but the code that's labeled

3   as part of the Flo core code would have been code released by

4   Flo. Certainly they might have hired subcontractors or

5   whatever. I don't know who Flo employs to write their code.

6   Q.   Okay. But none of the code that you displayed to the jury

7   when you were making your points in your demonstratives on

8   direct was actually code written by Meta; correct?

9   A.   That's correct. We did not display any code that was

10   actually written by Meta.

11   MR. CLUBOK: Okay. Thanks.

12   Pass the witness.

13   THE COURT: Okay. Any redirect?

14   MR. LEVIS: Yes, briefly.

15   REDIRECT EXAMINATION

16   BY MR. LEVIS:

17   Q.   I want to go back to this demonstrative that you were

18   asked a number of questions about, if that's okay.

19   Can you see that?

20   A.   No.

21   THE COURT: Put it on the easel.

22   MR. LEVIS: It's just a problematic --

23   MR. CLUBOK: We'll show the slides.

24   Can you put it up on the screen?

25   \\\

1   BY MR. LEVIS:

2   Q.   This is fine.

3   So you were asked a number of questions on

4   cross-examination about what would happen for questions that

5   were not available in the app.

6   Do you remember that?

7   A.   Yes.

8   Q.   And you were asked specifically about apps -- questions

9   related to several of the pregnancy events that are displayed

10 on this slide; correct?

11 A.   Yes.

12 Q.   Okay. What would happen for the millions of women who did

13 answer those questions?

14 A.   Well, their data would go to Facebook.

15 Q.   And consistent with your testing, would the answers to

16 those questions have been shared for everyone who answered

17 those questions?

18 A.   If they answered them, then absolutely. Again, the

19 software functions the same for every user.

20 Q.   And would those answers, when they were recorded, have

21 been transmitted to Meta?

22 A.   Yes.

23 Q.   So do you consider the Xs that counsel placed on this

24 demonstrative to be accurate?

25 A.   There was a lot placed on this demonstrative that I didn't

1 consider to be accurate, but yes.

2 **Q.**   Can you move the microphone down just a little bit?

3 **A.**   I'm sorry.

4 **Q.**   You were also asked some questions about the

5 SESSION_CYCLE_DAY_FIRST_LAUNCH event.

6   Do you recall those?

7 **A.**   I do.

8 **Q.**   And we discussed that on direct examination when we looked

9 at the log files for your testing; correct?

10 **A.**   Yes.

11   **MR. LEVIS:**   If you can pull up --

12 **BY MR. LEVIS:**

13 **Q.**   Now, there's a value on this demonstrative that counsel

14 created that says 0 or calculation.

15   Do you recall that?

16 **A.**   Yes.

17 **Q.**   What is the actual calculation, though, that gets recorded

18 by the Facebook SDK and transmitted to Meta?

19 **A.**   What day they are in their cycle, and then also what that

20 signifies, whether it's, you know, pregnancy, after the

21 fertility window, whether they're having their period,

22 fertility window before ovulation, or ovulation.

23 **Q.**   This is not a benign calculation; this is actually whether

24 a woman is pregnant after her fertility window, has her period

25 within her fertility window, before ovulation, or ovulating;

1 correct?

2 A.   Yeah. Correct.

3 Q.   And you testified on cross-examination that you consider

4 this to be the second half of the conversation between the user

5 and the Flo app; correct?

6 A.   Yeah.

7 Q.   Can you explain why?

8 A.   Yeah. I mean, like that's the reason why the user is

9 using the app to begin with; right? They go through the

10 onboarding survey or the first launch survey to provide their

11 medical information, and in exchange they're expecting health

12 insights back from the app. It's a conversation -- their

13 words -- the user has with the app, and the half of the

14 conversation where they're receiving the health information

15 based on the questions they just answered, that part is

16 getting, yeah, sent off to Facebook.

17 Q.   And if users provide honest answers to Flo's questions, do

18 they receive honest answers back from the Flo app?

19 A.   I feel like that's a question for a medical professional.

20   But, yes, the data that comes out is only as good as the

21 data that comes in.

22 Q.   And if they provide honest answers to the Flo app, are

23 those answers in the form of these -- this information about

24 their cycle recorded by the Facebook SDK?

25 A.   This is the information that gets recorded by the

1   Facebook SDK, yes.

2   Q.   You were also asked about several events where the value

3   on this chart is "I don't know" or number.

4   Do you see that?

5   A.   Yes.

6   Q.   And these are some of the events we talked about on your

7   direct examination as well?

8   A.   Yes.

9   Q.   Just to be clear, when a user enters "I don't know," the

10 value is unknown; correct?

11 A.   Correct.

12 Q.   Do you consider that to be an accurate reflection of the

13 user's answer to Flo's questions?

14 A.   It is. I mean, it's communicating that the user stated

15 that they didn't know the date of their last period or that the

16 user didn't know how long their cycle is or didn't know,

17 you know, their period length. I mean, that's -- yes, it's

18 reporting an accurate response to the question.

19 Q.   And that accurate response to the question would be

20 recorded by the Facebook SDK and transmitted to Meta?

21 A.   It would, yes.

22 Q.   You were asked questions about the symptom menu as well

23 and specifically the ADD_SEX function.

24   Do you remember that?

25 A.   I do.

1 Q.   For the women who chose whether they had protected or

2 unprotected sex, did that answer reflect the fact that they

3 added sex to that menu?

4 A.   Yes.

5 Q.   And what does the conclusion that they added sex in the

6 context of that event mean?

7 A.   That the user is reporting having sex that day.

8 Q.   You were asked questions about whether this was true for

9 everyone, as in -- I think counsel said that everyone in the

10 world has sex at some point.

11   Do you recall that?

12 A.   I'm currently not having sex right now.

13 Q.   For the survey questions in the Flo app --

14   THE COURT: Okay. Let's -- it's a family show.

15 BY MR. LEVIS:

16 Q.   Is that referring to in general or a specific day?

17 A.   A specific day, because that functionality comes up when

18 the user is logging information for that particular calendar

19 day.

20 Q.   And so for the users who recorded whether they had

21 protected or unprotected sex in the app when those were the two

22 options, that indicated whether or not they had sex on that

23 specific day; correct?

24 A.   Correct, yeah. I already said that, yes.

25 Q.   There's also R_CHOOSE_GOAL on this chart on the bottom as

1   well; correct?

2   A.   Yes.

3   Q.   And you notice that there is a conspicuous blank on this

4   demonstrative under Ms. Wellman's name?

5   A.   "Pregnant"? Is that the one?

6   Q.   Well, we'll get to that. But for the Ms. Wellman column,

7   there is no box on the bottom of that column; correct?

8   A.   That's correct.

9   Q.   Do you know what Ms. Wellman answered when she chose to

10   use the Flo app?

11   A.   Again, I wasn't paying attention to the specific inputs

12   that each of the individual plaintiffs put in, but --

13   Q.   So if Ms. Wellman had entered that she wanted to get

14   pregnant, what would the answer that was recorded by the

15   Facebook SDK have been?

16   A.   "Get pregnant."

17   Q.   And if you look to the right of that empty box, there are

18   two options there. It says "track cycle" or "get pregnant."

19   Do you see that?

20   A.   I do.

21   Q.   Is something missing from that box?

22   A.   Yup. "Pregnant."

23   Q.   And was the fact that a woman selected she was pregnant as

24   her goal recorded by the Facebook SDK and transmitted by Meta?

25   A.   It was.

1   Q.   You were asked a few questions about the identifiability

2   of data and Meta's specific interrogatory response in this

3   case.

4   Do you remember that?

5   A.   Yep.

6   Q.   Is that a public document?

7   A.   No. I think it was marked confident- -- I mean, the

8   interrogatory is probably not.

9   Q.   Would that have been disclosed to Facebook users?

10   A.   No. As I already said, like -- you know, most Facebook

11   users don't understand that at all, how this data is collected

12   and how it's used, and there's a wealth of academic literature

13   on that.

14   Q.   You were also asked several questions about the specific

15   data that Meta would have recorded for these individual

16   plaintiffs.

17   Do you remember that?

18   A.   Yes.

19   Q.   Were you given access to the data that Meta recorded about

20   those specific plaintiffs?

21   A.   About the specific plaintiffs? I honestly don't recall.

22   Q.   Do you know why that data wasn't available to you?

23   A.   Oh, I know that they deleted the data at some point, and

24   so that's why. I know that some of the raw data was not

25   produced because it was deleted.

1 Q.   And you were asked about your work in this case and your

2 compensation specifically.

3   Is there any amount of money that changes your opinion

4 about the facts regarding what the Facebook SDK recorded and

5 what Meta received and used in its advertising business?

6 A.   Honestly, I'd do this for free.

7   MR. LEVIS: Nothing further.

8   THE COURT: Okay. Any questions from the jury?

9   (No response.)

10   THE COURT: All right. You may step down. Be careful

11 on the way down.

12   Would you take the binders off.

13   And who do we have next?

14   MR. SADUN: Flo calls Mr. Karkanias.

15   (Witness excused.)

16 (Chris Karkanias steps forward to be sworn.)

17   CHRIS KARKANIAS,

18 called as a witness for the Defendants, having been duly sworn,

19 testified as follows:

20   THE WITNESS: I do.

21   THE COURTROOM DEPUTY: Thank you. Please be seated.

22   MR. LEVIS: Good afternoon, Mr. Karkanias.

23   THE WITNESS: Good afternoon.

24   THE COURTROOM DEPUTY: Please state your full name for

25 the Court and spell your last name.

1   **THE DEFENDANT:** I am Chris Karkanias,

2   K-A-R-K-A-N-I-A-S.

3   **THE COURTROOM DEPUTY:** Thank you.

4   <u>DIRECT EXAMINATION</u>

5   **BY MR. SADUN:**

6   **Q.**   Mr. Karkanias, please introduce yourself to the jury.

7   **A.**   Hi. I'm Chris Karkanias.

8   **Q.**   Why are you here today?

9   **A.**   I understand plaintiffs have retained Serge Egelman to

10   provide an opinion about the Flo app and its data handling, and

11   my opinions differ from his, so I'm here to rebut them.

12   **Q.**   Did you prepare a slide deck to show the jury?

13   **A.**   I did.

14   **Q.**   Is this that slide deck?

15   **A.**   Yes, it is.

16   **Q.**   Let's start with your education. Where did you attend

17   college?

18   **A.**   I attended Rutgers University to pursue a bachelor's in

19   neurobiology and behavior.

20   **Q.**   After college, did you attend graduate school?

21   **A.**   I did. I went to a consortium which was a combination of

22   Drexel University, Temple Medical School, and University of

23   Pennsylvania to pursue graduate work in biomedical engineering

24   initially.

25   **Q.**   And did you complete that concentration?

1   A.   I continued the work into neuroscience, but as you see

2   here, I have a designation ABD, "all but dissertation," which

3   means I did all the coursework and got all the way up to my

4   dissertation and then abandoned pursuing the Ph.D.

5   Q.   And why was that?

6   A.   I had met my wife along the way and we were building a

7   family, and I found that I couldn't do graduate schoolwork and

8   build a family, so I focused more on the corporate side of

9   things. And my first daughter was born shortly after I

10   abandoned that.

11   Q.   During graduate school, did you have an academic focus?

12   A.   Yes. It would be -- this was many years ago. It would be

13   considered machine learning and neural network research, in

14   today's parlance.

15   Q.   So you studied machine learning in graduate school and

16   joined the workforce?

17   A.   Yes.

18   Q.   Tell me about your work at Merck.

19   A.   Well, I started at McNeill in the eighties. That's where

20   I met my wife. And then I went to Merck, which is a large

21   pharmaceutical company, starting off on the lab side, biology,

22   and rapidly -- relatively rapidly advancing to larger roles,

23   medical program coordinator in neuroscience, which was my

24   background, and then by the mid-nineties was responsible for

25   all sorts of clinical data support in -- as an area head of

1   clinical support operations.

2   Q.   Tell us more about your responsibilities as area head.

3   A.   Yeah. I built information systems to handle clinical data

4   that -- of course, you're familiar that pharmaceutical

5   companies study drugs and how they interact in humans to

6   produce therapies for their patients, and that generates a lot

7   of data. So I built systems -- this is in the nineties, so

8   this is pre-computing era, pretty much. I built one of the

9   first computer collection environments that gathered clinical

10   trial data.

11   Q.   We're here today to discuss a mobile application. At

12   Merck, did you do any work on mobile apps?

13   A.   Yeah. These were mobile apps. You know, we take for

14   granted -- probably everybody has interacted with an iPad or

15   had one. Tablets were very rare in those days. They really

16   were big computers that weren't mobile. There were no cell

17   phones then, but that was the beginning of the mobile era, and

18   I built applications for that space.

19   Q.   The jury has heard a lot in particular today about

20   software development kits.

21   Did you use any software development kits to build those

22   mobile applications?

23   A.   Sure. Again, I don't want to sound repetitive, but the

24   early part of my career was -- predates all of that. There

25   were libraries of code -- I'm old enough to remember when there

1   was a debate whether you should code in object-oriented format

2   versus monolithic, one big thing versus pieces of things. But

3   libraries of code became one out, and those were the ancestors

4   of SDKs.

5   So, in short, yes, I've been using SDKs since it's been

6   possible to write code.

7   Q.   Did you ultimately leave Merck?

8   A.   I did. I left Merck in the early nineties to -- this was

9   the dot-com boom era, the first one, if folks can remember

10   about it, and many amazing things were going on as computers

11   were becoming widely available and people could use them to do

12   all kind of things, and I wanted to be part of that startup

13   adventure, so I left Merck to join that.

14   I joined as the chief technology officer at a company

15   called Coretech, which did software development work for all

16   kinds of customers, large customers -- JPMorgan, Ford Motor

17   Company, Rohm & Haas chemical company, and so on.

18   Q.   As the chief technology officer, did you build any mobile

19   applications?

20   A.   Yeah. Again, I'm very humbled to describe my background

21   here, but, again, because of the area I was operating in, a lot

22   of the things I was able to do were the first of their kind. I

23   built a banking pay/no-pay decision system. Today folks who

24   may have to deposit a check in your bank account, you're very

25   familiar. You get the check, scan it with your phone, it goes

1　right into the account. That's only been recently available.

2　　　I -- in the nineties, I built that for a banking system

3　where they could take the checks in and do that for themselves

4　and do all kinds of remote processing on that to make

5　pay/no-pay decisions, as they say.

6　Q.　After Coretech, where did you go next?

7　A.　I went -- I returned to Merck, now in the higher -- much

8　higher orbit as executive director of operations, and where I

9　was responsible for just an area in the nineties, I was now

10　responsible for all of human health in the U.S. doing every

11　clinical trial, every study from Phase 1, the earliest

12　possible, to production, when a drug is released into the

13　market.

14　Q.　Did you oversee anyone in that capacity?

15　A.　Oh, yeah. I had a large group of people. Mostly, again,

16　was information systems-based process, so I had quite a few

17　engineers, software engineers and researchers working in these

18　areas, and all the administrative staff to support clinical

19　trial work.

20　Q.　You say "quite a few." Can you try to quantify the number

21　of people that reported to you?

22　A.　There were about 300.

23　Q.　You left Merck again, according to this slide, in 2006?

24　A.　Yeah.

25　Q.　Where did you go next?

1   **A.**   I went to pursue an opportunity of a lifetime to work at

2   Microsoft, one of the largest software development companies on

3   the planet. And I was proud to be asked to start their health

4   division and built what was the progenitor of electronic health

5   records, the underlying systems that manage patient data. A

6   lot of it is still in use today in some form or another. It

7   included all sorts of mobile platforms, including

8   patient-centric platforms that allowed patients to organize

9   their own information, data that they gathered from devices as

10   well as the interaction they might have with their physician.

11   **Q.**   Did you say you helped found Microsoft's health division?

12   **A.**   Yes.

13   **Q.**   Tell us about what technologies you created in that

14   capacity.

15   **A.**   Well, so I built something called -- the flagship product

16   is, as you see here -- I don't say the name of -- oh,

17   HealthVault, and it was a personal health record platform. So

18   in those days -- I'll help us all remember.

19   So this is 2006, for about 10 years, out to 2016 that I

20   worked at Microsoft. And the privacy policies were emerging at

21   that point. They had to evolve to catch up to the technology

22   that was becoming available. So Microsoft created all kind of

23   policies that have led the way. And Microsoft has a very large

24   research organization that investigated privacy-related matters

25   and helped advise me on how to best build this -- these

1 platforms.

2 Q.   Did you oversee the creation of any mobile technology

3 while running Microsoft's health division?

4 A.   Yeah. HealthVault was a mobile app.

5 Q.   You oversaw hundreds of engineers, but did you write any

6 code yourself?

7 A.   Yeah. There's an old phrase of "once a developer, always

8 a developer." I started off writing code since it was possible

9 to write code, very early age, for my entire career, and I

10 continue that even to this day.

11   The -- when a new language comes out, I try and see what's

12 new and how it's different. I just try to keep current, and

13 that has helped me time and again understand the technical

14 details and limitations of the platforms and products that I'm

15 building and what my engineers are faced with as they build

16 their products, and I believe it has created a superior

17 approach to managing teams.

18 Q.   How many computer languages do you know?

19 A.   At least 20.

20 Q.   You had mentioned using SDKs at Merck. Did you use any

21 SDKs at Microsoft?

22 A.   Yes, in both cases.

23 Q.   And do you continue to use SDKs throughout your career

24 moving forward?

25 A.   Yeah. I would say it's a -- an expected practice to use

1   these libraries of code if -- for efficiency's sake, but also

2   for safety's sake. It would be irresponsible to develop an

3   application without leveraging these battle-tested libraries of

4   code and, you know, try to do it yourself. In fact, I have a

5   slide, I think, later on describing that.

6   Q.   After spending 10 years leading Microsoft's health

7   technology group, where did you go next?

8   A.   I went to a startup called Biohub. I was lucky enough to

9   be able to retire early from Microsoft. I hope I'm explaining

10   throughout my career I've tried to do interesting things but

11   also useful things that give back to the world, and I had the

12   position and luxury to be able to join a nonprofit that aimed

13   at doing really amazing things.

14   Biohub's mission statement was to eradicate disease and do

15   that by understanding how biology works fundamentally as an

16   information problem and build all the computer systems

17   necessary to make that possible.

18   So I -- the recruiters at Biohub found me in retirement

19   and made me an offer I couldn't refuse, which was to be part of

20   this. I took a huge pay cut to do that, and it's one of best

21   positions I've ever had.

22   Q.   What was your title at the Biohub?

23   A.   I started off, as you see on the slide, as VP of data

24   science. My job was to build the data science team, which did

25   all sorts of analytics and understanding biology at an

1 information level. And by the time I left, I was the CTO,

2 chief technology officer, in charge of everything technical at

3 the company, ranging from microscopes to mass spectrometers to

4 genome sequencing platforms, and, of course, all the

5 computational infrastructure that ran our machine learning

6 farms.

7 Q.   At the Biohub, did you do any work with patient medical

8 information?

9 A.   Yes, of course. You know, if you're trying to understand

10 biology at a fundamental level, you want to connect it not --

11 not just to plants and animals, but also to us, you know, what

12 does it mean for us.

13   And so we -- in partnership with the -- I should pause

14 and -- or back up a little bit and describe Biohub's

15 partnership included Stanford, Berkeley, and UCSF. And we got

16 the best and brightest there and brought them all together to

17 work on these problems, and that included Stanford Medical and

18 UCSF Medical, and we were fortunate to be able to use that data

19 to drive this.

20 Q.   You mentioned using that data. Did you do any work with

21 artificial intelligence?

22 A.   Yeah. Machine learning and artificial intelligence

23 permeates everything. In the same way that SDKs are present

24 everywhere in engineering, machine learning is -- I'm sure

25 everyone is becoming familiar with a very common factor in

1 every aspect of life today with ChatGPT and every part of the

2 world.

3 Q.   You mentioned loving your work at the Biohub. Why leave?

4 A.   I was asked to help lead a spinoff from Biohub. It was a

5 Biohub/Stanford spinoff called Stat OS, and it had its roots at

6 the beginning of the pandemic.

7   Folks will remember the terrible ventilator shortage that

8 occurred during at that time, where patients really needed that

9 equipment and couldn't get it. So the bioengineering groups at

10 Biohub and Stanford built a better ventilator that was cheaper

11 to make and easier to deploy, only to discover that that

12 revealed a second problem, which was a shortage in staff to be

13 able to run those machines.

14   So because I'm a machine learning expert, I was asked

15 to -- and a track record of building teams, I was asked to

16 create a smart ventilator with Stat OS using machine learning

17 so that it would run itself, basically, and offload that

18 problem.

19 Q.   Since leaving Biohub, have you done any other work

20 involving health technology that incorporates AI?

21 A.   Yeah. I'm an adviser to quite a few companies. The one

22 I'm listing here is the one that I'm most active in. I'm

23 chairman at a company called Canary Medical, which builds

24 instrumentation, software package and hardware package that

25 goes inside an artificial knee. And so that allows you to take

1 a smart knee -- a normal knee and turn it into a smart knee.

2 It allows you to measure things like angle and any wobble or

3 temperature for 20 years, and that has improved patient care

4 considerably. And we'll be doing that for hips and joints and

5 other things, shoulders and so on. And you can imagine other

6 areas, smart stents and other things, that will emerge from

7 that.

8 **Q.** Having spent your entire career building health

9 technology, do you have an understanding of what constitutes

10 medical information?

11 **A.** Yes. Yes, I do.

12 **Q.** Please elaborate.

13 **A.** I -- I would distinguish medical information from other

14 information in that it's -- it is the data that is generated in

15 the delivery of care by a physician or their staff to their

16 patients.

17   **THE COURT:** We haven't qualified him yet for any

18 opinions, so when are you planning to do that?

19   Just ignore that last bit. We've got to do some work

20 before that.

21   **MR. SADUN:** Not a problem, Your Honor. I can move on

22 and come back to that.

23   **THE COURT:** Don't ask any opinions until he's

24 qualified.

25   **MR. SADUN:** Of course.

1   THE COURT: That question and answer will be stricken,

2   and you are not to consider it.

3   BY MR. SADUN:

4   Q.   Have you ever been the inventor on any patents?

5   A.   I have, yeah. Here's a slide.

6   So about a hundred patents worldwide. The patents

7   themselves, I picked two here to show. One is -- I'll do the

8   bottom one first, which is a notion of being able to collect

9   data universally.

10   So, again, these days -- this was 2006, if I recall

11   correctly. These days we all take it for granted, and some of

12   you may have an iWatch on or a Fitbit or some other thing that

13   helps you gather fitness data.

14   This was a relatively new idea that you could even do

15   something like this, and how you would organize that data in

16   this patent is about that. So everything is kind of a

17   derivative of that.

18   The one on the top is imagining a world where you could

19   use a camera or other imagining capture to take the vital signs

20   of a patient, so a bit like Star Trek. You know, you walk in a

21   room and something is scanning you, and you can, it turns out,

22   get their pulse, figure out their blood pressure, and maybe if

23   they have joint problems because of their gait, that kind of

24   thing, that a computer can pick up from an image that you

25   wouldn't otherwise get.

1   So this is just two of a hundred of the kinds of things

2 I've been involved in throughout the years.

3 Q.   Of your hundreds of patents, how many involved health

4 technology?

5 A.   I think most of all -- most, if not all of them.

6 Q.   Has your work ever been published in any peer-reviewed

7 scientific journals?

8 A.   Yeah. There's two here that are listed, in Nature and

9 Science.

10 Q.   Do you know how often your peer-reviewed academic

11 literature has been cited?

12 A.   Over 3,000 times.

13 Q.   Now, you're getting paid for your time today; is that

14 correct?

15 A.   Yes.

16 Q.   What is your hourly fee?

17 A.   895.

18   MR. SADUN: Your Honor, at this time, I'd like to

19 qualify Mr. Karkanias in mobile app design and development,

20 software development kits, machine learning, and health

21 technology.

22   MR. LEVIS: Objection to qualification.

23   THE COURT: Yeah, I got it.

24   You know what, ladies and gentlemen? We're going to have

25 a little break. We're going to leave early today, okay,

1 because there's something we have to deal with and I'm not

2 going to take your time up with it.

3 So see you tomorrow morning. Now, Ms. Clark is champing

4 at the bit to get to the door. Let's all just take a second.

5 Remember our parting admonition. What are you going to

6 do? You tell me.

7 **JUROR NUMBER 3:** Relax.

8 **JUROR NUMBER 6:** Exercise.

9 **THE COURT:** Yes, exactly. You're going to do nothing,

10 nothing at all about this case. You're not going to think

11 about it. You're not going to talk about it. You're not going

12 to do any research, investigation. You're going to go do

13 everything else but this. And we'll see you tomorrow morning.

14 **THE COURTROOM DEPUTY:** All rise.

15 (The jury leaves the courtroom.)

16 (Proceedings were heard out of the presence of the jury.)

17 **THE COURT:** Okay. I'll be back in five minutes.

18 (Recess taken at 2:15 p.m.)

19 (Proceedings resumed at 2:27 p.m.)

20 **THE COURTROOM DEPUTY:** Remain seated and come to

21 order. You can remain seated. Come to order.

22 Back on the record in Civil 21-757, Frasco versus

23 Flo Health.

24 **THE COURT:** Okay. Plaintiff, what's the objection to

25 qualification?

1   **MR. LEVIS:** Your Honor, counsel indicated that he was

2   attempting to qualify Mr. Karkanias as an expert in four

3   subject matters: Mobile applications, SDKs, I believe it was

4   healthcare or health technology, and then machine learning --

5   **MR. SADUN:** I can lead with the good news. We've

6   worked it out amongst ourselves, Your Honor.

7   **MR. LEVIS:** I was just going to say, we've spoken on

8   the break and they've agreed to drop the last two, the health

9   technology and the -- I'm drawing a blank -- machine learning

10   testimony. That's -- Dr. Egelman offered no opinions about

11   that.

12   The only thing I would say with regard to the first two on

13   mobile applications and SDKs that without, you know, having an

14   offer of proof about what this witness is going to testify to,

15   Your Honor was clear that this should be limited to rebutting

16   Dr. Egelman's opinions.

17   **MR. SADUN:** It will be.

18   **MR. LEVIS:** To the extent he does and he has his own,

19   you know, technical analysis or discussion, we think that's

20   fine, but I just reserve the ability to renew in case --

21   **THE COURT:** Well, I thought you were going to --

22   First of all, I made it clear in our discussion on

23   May 18th that I had concerns about this witness, and I

24   expressly said that I would review them at trial, so that's

25   what we're doing.

1   I have a number of concerns. May 15th, yeah. That was on

2 May 15th.

3   First is I don't really -- you know, he -- Mr. Karkanias

4 has a long and deep background in pharmaceuticals and health

5 solutions and clinical trial data and human health and what he

6 called eradicating disease with analytics or biology.

7   I didn't hear anything about his expertise in SDKs with

8 respect to mobile apps.

9   **MR. SADUN:** Your Honor, he spoke specifically to that

10 issue. At Microsoft he built mobile apps using SDKs,

11 10 years --

12   **THE COURT:** That was a drive-by reference. He doesn't

13 have any degrees in it. He was at Microsoft. There was a

14 statement that he used SDKs and built apps, but I don't know if

15 that's quite enough.

16   **MR. SADUN:** Well, Your Honor, in the technical space,

17 it's certainly not uncommon for someone not to have a Ph.D. He

18 does have a master's.

19   **THE COURT:** Oh, please. Let me be clear. You do not

20 have to have a degree to be an expert. You can be an expert in

21 all sorts of fields based on training and experience. But I

22 didn't hear any foundation -- what I meant to say was it's a

23 three-legged stool. There's no degree, no training, and no

24 experience that I heard other than a brief reference to

25 Microsoft.

1   **MR. SADUN:** He has extensive experience. I'd be

2   happy -- I was trying to streamline things, move it along. I

3   can lay further foundation if Your Honor would like. But he

4   has literally spent the last 15 years doing nothing but mobile

5   app design using SDKs. In contrast to plaintiffs' expert,

6   Serge Egelman --

7   (Reporter interruption for clarity of the record.)

8   **MR. SADUN:** In contrast to plaintiffs' expert, Serge

9   Egelman, he's actually programmed using the Facebook

10 Analytics SDK many, many times, whereas Serge Egelman had zero

11 instances.

12   **THE COURT:** Okay. We're just talking about this one

13 person. All right? This is not a chance to --

14   **MR. SADUN:** Of course.

15   **THE COURT:** -- make comments about another expert.

16   All right. Well, we may -- I may have to take some

17 testimony, then.

18   The second thing is I had a question at that hearing in

19 May about how this is different from another expert named

20 Zervas?

21   **MR. LEVIS:** Yeah. So I can respond to this. And,

22 Your Honor, you're right in questioning Mr. Karkanias'

23 experience. I think we were trying to be maybe a bit -- maybe

24 too nice in trying to work something out beforehand.

25   But, yes, our concern in the original motion to exclude

1   him was that defendants had selected a joint technology expert,

2   who is Dr. Zervas, who was here to rebut Dr. Egelman's

3   testimony as well as Dr. Golbeck's testimony, our machine

4   learning expert.

5   This witness's testimony, if he were to fit into the

6   category of mobile apps and SDKs, from what we've seen from the

7   presentation of what's going to be presented is entirely

8   duplicative of what the other expert was going to testify

9   about. It is another kind of way to get a second rebuttal

10 expert to the one expert that we have.

11   And so we'd renew our motion to exclude him on that basis

12 too.

13   THE COURT: Okay. So --

14   MR. SADUN: Your Honor, may I be heard?

15   THE COURT: -- how are they different? Yeah.

16   MR. SADUN: I'll let my colleagues speak to this as

17 well, but from our perspective, they really couldn't be more

18 different. One is talking about how the data gets collected

19 and transmitted, whereas Dr. Zervas is focusing more on the

20 back end, what is Facebook doing with the data itself. And so

21 it's basically --

22   THE COURT: I'm not following.

23   MR. SADUN: -- two-sided market --

24   THE COURT: You need to stop when I start.

25   MR. SADUN: Of course.

1   **THE COURT:** I'm going to hold up a little sign for you

2   because you seem to have trouble remembering that. I'm not

3   saying that lightly.

4   **MR. SADUN:** I understand.

5   **THE COURT:** Do you?

6   **MR. SADUN:** Yes, Your Honor.

7   **THE COURT:** Okay.

8   I don't understand what that means for Dr. -- for

9   Mr. Karkanias to talk about the front end. What does that

10 mean?

11   **MR. SADUN:** I'm saying Mr. Karkanias --

12   **THE COURT:** Get a little closer to the mic.

13   **MR. SADUN:** Mr. Karkanias, testifying on behalf of

14 just Flo, is focused on the -- rebutting Serge Egelman's

15 opinions concerning the data in transit, what gets sent.

16   Dr. Zervas speaks to a whole set of issues, which I will

17 let my colleagues speak to, but it's not limited to the

18 transmission of data. He focuses largely on the application of

19 machine learning to then whether or not it gets fed into AI

20 systems, which is their theory of harm.

21   That is not a subject that Mr. Karkanias speaks on

22 whatsoever. We will not be eliciting such testimony.

23   On top of which you also heard during cross-examination

24 earlier today of Serge Egelman that Meta and Flo are not

25 entirely aligned as it relates to IDFAs. From Flo's

1 | perspective, device identifiers --

2 | **THE COURT:** Okay.

3 | **MR. SADUN:** -- but we need different technology

4 | experts to speak to --

5 | **THE COURT:** Just stop, please. Just stop.

6 | So is it Mr. or Dr. Zervas?

7 | **MR. LEVIS:** Doctor.

8 | **THE COURT:** Dr. Zervas is going to be limited to AI

9 | systems in some way? Is that how we're avoiding overlap?

10 | **MR. CLUBOK:** No, Your Honor.

11 | **THE COURT:** Well, that's what your colleague just

12 | said.

13 | **MR. CLUBOK:** I understand. Your Honor, may I --

14 | **THE COURT:** Is he your witness?

15 | **MR. CLUBOK:** Dr. Zervas is a joint defense witness.

16 | **THE COURT:** Joint.

17 | **MR. CLUBOK:** Yeah. We were instructed to work

18 | together, which we did. I think in the original reports, I'm

19 | not sure if he was, but in the revised reports that Your Honor

20 | asked for, he became a joint witness.

21 | Dr. Zervas responds largely to Dr. Egelman and also to

22 | Dr. Golbeck, their machine learning expert. Dr. Zervas is one

23 | expert that responds --

24 | **THE COURT:** I understand that. What is Dr. Zervas

25 | going to say that Mr. Karkanias is not going to say in response

1 to Dr. Egelman?

2   MR. CLUBOK: It's a -- it's a little more difficult

3 for me -- I don't want to pass the buck. If we could have a

4 moment to confer amongst ourselves? I think we need to --

5   THE COURT: That's fine, but we're doing it right now,

6 because I'm on the precipice of deciding whether he's going to

7 continue as a witness. So go ahead and talk and I'll be here

8 waiting.

9   MR. CLUBOK: Okay.

10   (Counsel conferring.)

11   THE COURT: Are you ready?

12   MR. CLUBOK: Go ahead.

13   MR. SADUN: Sorry.

14   In regards to Mr. Karkanias, it really feels a bit of cart

15 before the horse. The Court hasn't had an opportunity to hear

16 what his opinions are.

17   To make it simple, here is the slide that was going to be

18 shown next. It literally lists the totality of his opinions in

19 this case. It seems directly on point to Your Honor's

20 question --

21   THE COURT: Hand that to Ms. Clark.

22   MR. LEVIS: The only thing I would add, Your Honor, is

23 we have Dr. Zervas' presentation --

24   THE COURT: Let me look at it.

25   MR. LEVIS: Sure.

PROCEEDINGS

1   THE COURT: "Nothing Flo transmitted came from a

2 doctor." What does that mean? Came from users?

3   What does the doctor part mean?

4   MR. SADUN: Under the CMIA, it can also be relevant to

5 the degree to which a user is getting information and

6 submitting it --

7   THE COURT: I'm not asking that. I'm asking what

8 is -- literally, what does that mean? He's going to say

9 nothing from Flo came --

10   That's not in dispute, is it?

11   MR. SADUN: There is a dispute. Plaintiffs have

12 argued that we have --

13   THE COURT: I'm sorry. Your colleague just said

14 that's not in dispute.

15   MR. SADUN: Well, I'd like --

16   MR. LEVIS: Yeah. Again, this is -- kind of relates

17 to the health technology, the health background point. We're

18 not disputing whether Flo is a doctor, so this is just a way to

19 back-door in a health opinion that no one in this case is

20 testifying to.

21   MR. SADUN: There is a dispute, Your Honor, as to

22 whether or not Flo is a medical care provider as regulated by

23 the CMIA. We state that --

24   THE COURT: I don't understand what you mean by the

25 word "transmitted." Are you talking about nothing on the

1   Flo app came from a doctor or nothing the user inputted?

2   **MR. SADUN:** Nothing a user inputted was originally

3   provided by a physician. That, under the CMIA, is significant

4   and means Flo is not a healthcare provider and thus not subject

5   to the statute under which --

6   **THE COURT:** I have to ask you to not -- just answer my

7   questions. I've got a million things to do, and listening to

8   you go on and on and on because you want to score a point is

9   not one of them.

10   **MR. SADUN:** Yes, Your Honor.

11   **THE COURT:** I don't think you're getting it. I can't

12   be any plainer than this with you. It's not helpful to me or

13   your client.

14   Is this in dispute? Are you willing to stipulate that

15   none of your users were doctors?

16   **MR. SADUN:** That --

17   **THE COURT:** You know, within reason, I guess?

18   **MR. LEVIS:** Yeah. I don't think we're contesting that

19   Flo is a doctor. That's why this, to me, is -- just seems out

20   of the scope of what this case is about. It's not a rebuttal

21   to any opinion Dr. Egelman gave.

22   **THE COURT:** Dr. Egelman did not say anything about

23   anybody being a doctor.

24   **MR. SADUN:** He spoke --

25   **THE COURT:** Leave that aside for a moment.

1   "Data was tied to devices, not people." Okay.

2   What's his qualification for saying that?

3   **MR. SADUN:** He has programmed extensively over the

4 last 30 years, leading entire divisions regarding their use of

5 deidentified data.

6   As to the first issue, Your Honor, medical information is

7 the central dispute in this case for Flo.

8   **THE COURT:** Stop. I didn't ask that.

9   You're going to have to sit down.

10   Who else can argue for Flo on this issue?

11   All right. The question I did ask: "Data was tied to

12 devices, not people." How is he qualified for that?

13   **MS. SHARTON:** Well, having spent a whole career

14 building SDKs and apps, he's an expert on deidentified in this

15 IDFA issue that's in the case that the plaintiffs have said,

16 you know, the IDFA was really an identifier. He's going to

17 talk about how IDFAs are a privacy-preserving mechanism, why

18 companies use them, and so that evolution of the IDFA and how

19 that's tied to --

20   **THE COURT:** That wasn't part of Dr. Egelman's

21 testimony. He did not talk about privacy policies. He said

22 the data was not aggregated and he said that deidentification

23 got you to a certain point but it was short of being anonymous.

24 That's all he said.

25   **MS. SHARTON:** Right.

PROCEEDINGS

1   **THE COURT:** Mr. -- Dr. -- I'm sorry. I'm blanking on

2   his name.

3   **MS. SHARTON:** Egelman.

4   **THE COURT:** No, no. Your guy.

5   **MS. SHARTON:** Oh, oh, Karkanias.

6   **THE COURT:** Mr. Karkanias cannot say anything about

7   why they used -- why privacy concerns drive deidentification.

8   **MS. SHARTON:** I think --

9   **THE COURT:** I understand we're talking about an SDK

10   from Facebook for mobile apps. What's his expertise in that?

11   **MS. SHARTON:** Yeah. He has used the Facebook

12   Analytics SDK for decades, and I think while Mr. Egelman --

13   sort of his entire testimony was about how these can be matched

14   up, these device identifiers can be matched up. That's what

15   he's going to address --

16   **THE COURT:** All right -- but --

17   **MS. SHARTON:** -- and say this is why --

18   **THE COURT:** But Mr. Egelman's testimony was there was

19   a unique ID that was assigned to each user through -- and

20   through the SDK transmission could be correlated to Facebook

21   accounts. So he's going to say no, that didn't happen? Is

22   that what he's going to say?

23   **MS. SHARTON:** Correct. Well, he's going to talk about

24   what these device identifiers do. He's going to say no, this

25   is why it's a guess at best and how this does not match up.

1   That's part of what he's going to testify to.

2   So there is a dispute about that, Your Honor.

3   **THE COURT:** It's specific to Flo and the SDK?

4   **MS. SHARTON:** Yes, absolutely.

5   **THE COURT:** Not just generally, but specifically?

6   Okay.

7   **MS. SHARTON:** Correct.

8   **THE COURT:** Mr. Egelman was specific about Flo and the

9   Facebook SDK. Okay. So -- all right.

10   Okay. And then what's this third thing? "Data was

11   inherently unreliable and indecipherable."

12   **MS. SHARTON:** Yes. So he's going to talk about how

13   when you look at the -- you know, the code that kept getting

14   put up in front of Dr. Egelman in that sort of -- the

15   discussion about what those --

16   **THE COURT:** The log events?

17   **MS. SHARTON:** The log events.

18   **THE COURT:** The log events.

19   **MS. SHARTON:** Yeah, so he can say wait a minute; I ran

20   this and -- for example, pregnancy week chosen, and Dr. Egelman

21   pointed to pregnancy week chosen 6.

22   On the same code, running the same code, Mr. Karkanias got

23   two different results even on one trigger, so it said pregnancy

24   week chosen 7, pregnancy week chosen 10 in the exact same fire.

25   So therefore, Facebook wouldn't be able to tell like what does

1   this mean.

2   And many of the other log events on their face might seem

3   to mean something, but he's got a different meaning for those

4   log events.

5   **THE COURT:** I thought the log events were just copied,

6   that there was no dispute over -- it's a log, meaning it's like

7   a book page. A log is like a book page; you just copy it.

8   So I don't quite understand what you're doing.

9   **MS. SHARTON:** It's very much disputed what's in that

10 code. You know, the screens we were showing in the copying --

11   **THE COURT:** It's disputed?

12   **MS. SHARTON:** Yes, it's very much disputed.

13   **THE COURT:** So you're saying copy -- that what we saw

14 was not actually what the log looks like?

15   **MS. SHARTON:** Like how do you decipher it. So they're

16 pointing to certain things in that code, and our expert is

17 saying wait a minute, that's not what that means. If you look

18 here and not there, it means something completely different,

19 and they would never have been able to decipher the code.

20   **THE COURT:** All right.

21   **MS. SHARTON:** And that's what he's going to talk

22 about -- just to Flo.

23   **THE COURT:** How is that different from the other

24 fellow?

25   **MR. CLUBOK:** Your Honor, here are Dr. Zervas'

1 opinions, and I can hand them up. We've already exchanged them

2 with the plaintiffs.

3 　　　　　**THE COURT:** Is it like this?

4 　　　　　**MR. CLUBOK:** It's like that.

5 　　　　　**THE COURT:** Hand it to Ms. Clark.

6 　　　　　**MR. CLUBOK:** Unfortunately, it's a hard-to-read

7 version because we had trouble printing it out.

8 　　　And the plaintiffs have told us they're not objecting to

9 these opinions. These are directly -- they directly rebut both

10 Dr. Egelman but also Dr. Golbeck, so --

11 　　　　　**THE COURT:** Okay. Which ones are the Dr. Egelman

12 ones?

13 　　　　　**MS. SHARTON:** The first -- where it says "Dr. Egelman

14 mischaracterizes how SDKs work."

15 　　　　　**THE COURT:** All three under that?

16 　　　　　**MR. CLUBOK:** All three under that are the rebuttal.

17 　　　　　**THE COURT:** All right. Okay.

18 　　　　　　　　　　(Pause in proceedings.)

19 　　　　　**THE COURT:** Okay. Well, I don't see much overlap. Is

20 there overlap?

21 　　　　　**MR. LEVIS:** Yes, Your Honor. I actually have the full

22 deck that we were provided for Zervas, and I would just point

23 out part of the issue we have is not only Mr. Karkanias' lack

24 of experience on these specific topics, but the topics are

25 actually directly in Zervas' presentation as well.

1   So as to the IDFA issue, this is actually entirely

2 duplicative --

3   **THE COURT:** By that, you mean data tied to devices,

4 not people?

5   **MR. LEVIS:** Exactly. This is Slide 20 in Zervas'

6 presentation. It deals with IDFAs. He has a whole section on

7 IDFAs in here.

8   There's also a section on Slide 28 that deals with the

9 reliability and the accuracy of the information, specifically

10 going through an analysis of SESSION_CYCLE_DATE.

11   **THE COURT:** Well, here's what I'm going to do on that.

12 You're going to proceed at your peril. So if Dr. Karkanias' --

13 I can't say it. I'm terribly sorry. Karkanian? Is it S or N?

14   **MS. SHARTON:** It's Karkanias, with an S.

15   **THE COURT:** I'm from the Mediterranean. I should know

16 this.

17   Dr. Karkanias, I'm assuming -- good Lord. I'm making all

18 sorts of reckless statements. I'm not speculating on his

19 ethnic origins.

20   Do whatever you want, but I'm not going to let it happen

21 again. So if Dr. Karkanias goes to town on "data, not devices"

22 or "devices, not people," we're not going to hear another whole

23 15 minutes on "devices, not people." It's not going to happen.

24   You two work it out. You manage the expert any way you

25 want, but we're not going to plow that same ground twice.

PROCEEDINGS

1　　　　MR. CLUBOK:　We agree, Your Honor.　But to be clear,

2　Dr. Karkanias -- or Mr. Karkanias is not our expert.　We have

3　no control over what he says.　And it appears --

4　　　　THE COURT:　Well, you're with a colleague and you have

5　a joint witness.　I understand that's one -- Dr. --

6　Mr. Karkanias is not joint, but you need to work that out.

7　All right?

8　　　　MR. CLUBOK:　Well, but there might be a different

9　position between Flo and Facebook.　We can't be forced to take

10　the same position they have.　There's clearly a different view

11　at Facebook.

12　　　　THE COURT:　I'm not forcing you to do anything.　I'm

13　telling you to just work it out so it's non-duplicative

14　testimony, as I told you at the pretrial conference and on

15　other occasions.　In fact, I believe I said it to you quite

16　clearly at the May 15th hearing.　You've known this for a long

17　time.　I will not permit duplicative testimony.

18　　　Now, it's perfectly fine if Dr. Zervas want to set the

19　table and say, well, as you've heard, and I agree the data is

20　tied to devices, not people.　You can't figure out the people.

21　That's fine.

22　　　But we're not going to go as if we haven't heard a word

23　about that and have him go through 15 minutes of testimony and

24　say let me explain IDFAs.　We're not going to do that.　And I'm

25　going to police that line.

1   You two -- it's between you two. This is between you and

2 me. Okay? And between you and me, we're not hearing the same

3 story twice. We're just not.

4   So you can go ahead if you want to call Mr. Karkanias

5 first.

6   I do want to have him hop up back on the stand now because

7 I need to hear more about why he's qualified to talk about

8 SDKs -- Facebook SDKs and the Flo app the way that Dr. Egelman

9 spoke this morning. I'm going to let you voir dire him first

10 on the Flo side, and then you can cross.

11   **MR. CLUBOK:** In light of this, Your Honor, there is

12 one issue. I'm sorry. I know it's late in the day.

13   **THE COURT:** Yes, that's fine.

14   **MR. CLUBOK:** But there are -- Dr. Zervas responds to

15 both Dr. Egelman and Dr. Golbeck.

16   **THE COURT:** Yes.

17   **MR. CLUBOK:** We had clearly understood your order on

18 stacking to want Dr. -- the experts to go all together so

19 there's just kind of fresh responses to the opinions.

20   **THE COURT:** Yes.

21   **MR. CLUBOK:** And we agree with that completely.

22   So it should be Dr. -- and -- but Dr. -- Mr. Karkanias

23 responds to, I guess, a little bit of Zervas in a way that's

24 probably different than Facebook, but that --

25   I'm sorry. I've said it wrong now. I apologize, Your

1   Honor.

2   THE COURT: I understand what you're saying.

3   MR. CLUBOK: Dr. Egelman --

4   THE COURT: You two have got to work it out. You've

5   got 'til tomorrow or he's not going to testify.

6   MR. CLUBOK: The question about stacking, though. So

7   it should be, we believe, Dr. Egelman; then it's fine if

8   Dr. Karkanias goes and gives the Flo perspective. But then

9   Dr. Golbeck should go and then Dr. Zervas should respond to

10 both Egelman and Golbeck. And we believe and understood that

11 that should be stacked.

12   I had agreed to move it around, but in light of all this,

13 I just ask that the --

14   THE COURT: I think this is not the same issue. All

15 I'm saying --

16   MR. CLUBOK: It's related.

17   THE COURT: -- I'm not going to let two experts in the

18 same side just tell the same story. This is not going to

19 happen. Now, they can telegraph. Fine. Buy into it.

20 Perfectly fine. A little summary to set up their testimony.

21 That's all fine.

22   But we're not going to act as if nobody has heard about it

23 the second time around. We're just not going to do that.

24   MR. CLUBOK: Agreed.

25   THE COURT: That's all I'm saying. Stacking --

1   whatever you want to call it. Program -- you all work that

2   out.

3   MR. CLUBOK: Okay. Thank you, Your Honor.

4   THE COURT: But I am not going to permit it. Just be

5   aware of that.

6   Okay --

7   MR. LEVIS: Your Honor, I have one open issue I'd like

8   to discuss with the Court.

9   THE COURT: I just wanted to hear the witness. We're

10   doing a little voir dire of the witness. Are you doing that?

11   MR. LEVIS: Totally different issue.

12   MR. CANTY: Yeah, it's a different issue, Your Honor.

13   THE COURT: Okay.

14   Plaintiff -- I mean, Defendant. My apologies. I'm so

15   sorry.

16   THE WITNESS: No, no.

17   THE COURT: It's just sometimes there's so many names.

18   THE WITNESS: Not needed, Your Honor.

19   THE COURT: All right. I've been terribly sorry.

20   THE WITNESS: Sorry. I can't walk any faster.

21   THE COURT: Take your time, please. No rush. Okay.

22   Would you reswear the witness, please, Ms. Clark.

23   THE COURTROOM DEPUTY: Stand and raise your right

24   hand.

25   THE COURT: He can stay seated.

1   **THE COURTROOM DEPUTY:** Raise your right hand.

2   <u>**CHRIS KARKANIAS**</u>,

3   called as a witness for the Defendants, having been duly sworn,

4   testified as follows:

5   **THE WITNESS:** I do.

6   **THE COURTROOM DEPUTY:** Thank you.

7   **THE COURT:** Okay. Go ahead, Flo.

8   **MS. SHARTON:** You wanted me to ask him, Your Honor?

9   **THE COURT:** Just qualify him on the SDK and mobile app

10   point.

11   **MS. SHARTON:** Okay.

12   **<u>VOIR DIRE EXAMINATION</u>**

13   **BY MS. SHARTON:**

14   **Q.**   Mr. Karkanias, what is your personal experience with SDKs

15   and mobile applications specifically?

16   **A.**   Yeah. I've been developing code for many years, decades,

17   and have used libraries of code to streamline and stabilize

18   those products, particularly mobile platforms, where it's a

19   very constrained environment. The code has to operate in a

20   very small space. And those libraries of code have been SDKs,

21   and I'm very familiar with integrating those into the code.

22   **THE COURT:** Can you give me a little background on

23   what you've done with that, like some specific app projects or

24   something --

25   **THE WITNESS:** Sure.

1   **THE COURT:** -- and when you did them.

2   **THE WITNESS:** Sure. Yeah. So let's see. I would say

3   kind of in -- I'll try to do these in chronological or some

4   order that makes sense.

5   So the clinical trial side of things, although the

6   context, Your Honor, is correct, it's in the pharma industry,

7   it's still building an information management app for clinical

8   data. And I built what's called a patient diary that ran on

9   PDAs. Back before there were cell phones, you had these little

10 handheld computers.

11   **THE COURT:** Yeah, Palms.

12   **THE WITNESS:** Palm was the first one, and that's the

13 one I worked on.

14   And I did things like with the Apple Newton and other

15 mobile platforms, and I built a patient diary. And in a

16 clinical trial, you're running an experiment to try and gather

17 data about how the patient is feeling. Let's say it's a blood

18 pressure medicine. How -- do you feel flushed? Have you taken

19 your blood pressure today? Did you take your meds?

20   And it would walk through those questions and you would

21 answer those questions and store them, and then when you docked

22 it, it would send the data back to the mother ship, in this

23 case, Merck.

24   **THE COURT:** Through the SDK?

25   **THE WITNESS:** Through the SDK.

1   THE COURT: Have you worked specifically with the

2   Facebook SDK?

3   THE WITNESS: I have. So when I was at Microsoft --

4   that's much later in my career now -- in the early 2000s,

5   Microsoft -- and I'll apologize. I'm not trying to be coy here

6   or skirt any topics, but I have NDAs that I continue to

7   maintain.

8   THE COURT: That's fine. Just at a high level.

9   THE WITNESS: At a high level, so Microsoft had access

10   to the Facebook stream of data and other things like Google

11   search engines and things like that, and we often would

12   integrate into our mobile environments using analytic data,

13   instrumentation data, using the Facebook SDK.

14   THE COURT: Oh, okay.

15   BY MS. SHARTON:

16   Q.   Okay. And how about your personal experience programming

17   with the Facebook SDK specifically?

18   A.   Yeah, there's --

19   Q.   That's the one?

20   A.   That was that.

21   Q.   And programming with analytics SDKs more generally?

22   A.   In particular, yeah. So most of the -- a lot of the

23   products at Microsoft require significant instrumentation to

24   understand how the users are using them for continuous

25   improvement. This might not be very obvious, but when a

1 developer designs something or a team designs something, what

2 they think a user will need, they're making a guess; right?

3 Sometimes they'll interview users and try to understand how

4 they work, but often even the users themselves don't know what

5 it is they want to do or how they want to do it.

6   So you want to measure every part of the app -- which

7 buttons get pressed, how even long it takes between two button

8 presses, when the user is finally trying to find some function,

9 how many button presses or clicks does it take to get through,

10 and there are many kinds of SDKs that instrument the

11 application to provide that analytic data.

12   The Facebook Analytics SDK is one of the most famous ones

13 because of who Facebook is, but there are lots of SDKs like

14 that.

15   THE COURT: Now, in preparation for your opinions and

16 testimony in this case, did you actually work with the

17 Facebook SDK in conjunction with the Flo app?

18   THE WITNESS: I did not.

19   THE COURT: Okay. Did you look at the log events --

20   THE WITNESS: Oh, yes.

21   THE COURT: -- that we've heard about?

22   Okay.

23   THE WITNESS: Yeah, I interrogated the app quite

24 extensively and looked at its operation.

25   THE COURT: Okay. Did you look at the Facebook SDK

1 that was in place at that time?

2   THE WITNESS: Yes. Well, I didn't -- I didn't code

3 anything new using the Facebook SDK, but I traced the -- what's

4 called the message traffic -- which I believe Your Honor is

5 referring to as the logs -- from the app and what it emitted

6 every time anyone pressed any button on it.

7   THE COURT: Okay. Anything else, Flo?

8 BY MS. SHARTON:

9 Q.   How did it work? Was your physical lab setup to do that?

10 A.   Oh. So what I was just describing was tracking the

11 message data. So we created a physical lab using phones,

12 physical phones, which we instrumented to -- with software that

13 is designed to intercept the traffic that the phone generates.

14 So when you press a button, it does something.

15   Like in the Palm example I gave earlier where it's phoning

16 home to the mother ship and sending data, the same thing

17 happens with the Flo app, and we intercepted that data and

18 built a log of that, and's the message traffic that we

19 observed.

20   THE COURT: But that was not using the Facebook SDK?

21   THE WITNESS: It was.

22   THE COURT: It was.

23   THE WITNESS: But it was -- but think of it -- so one

24 example of a tool is something called mitmproxy. The "mitm" is

25 for man in the middle proxy, and it's what it sounds like. You

1 have the app on one side, the Facebook receiver on the other

2 side, and this thing in the middle collecting the data. And

3 that's what I looked at to find inconsistencies in how the app

4 responded.

5   THE COURT: Okay. All right. Plaintiff?

6   I'm sorry. Were you --

7 BY MS. SHARTON:

8 Q.   Is it fair to say you ran the Facebook SDK as integrated

9 into the Flo app?

10 A.   Yes.

11 Q.   Okay.

12   THE COURT: All right. Plaintiff?

13   MS. SHARTON: Thank you, Your Honor.

14   MR. LEVIS: Good afternoon, Mr. Karkanias.

15   THE DEFENDANT: Good afternoon.

16   **VOIR DIRE EXAMINATION**

17 BY MR. LEVIS:

18 Q.   You don't have a degree in computer science?

19 A.   I do not.

20 Q.   And do you have a degree in computer engineering?

21 A.   No.

22 Q.   You mentioned your work with mobile applications going

23 back to, I think, your role as a CTO of Coretech between 1994

24 and 2000?

25 A.   Mm-hmm. And earlier at Merck in that clinical trial app I

1 was talking about.

2 Q.   The iPhone didn't exist until 2007; correct?

3 A.   That's right.

4 Q.   And you're aware that this case is about iPhone apps and

5 Android apps?

6 A.   Yes, sure.

7 Q.   You've never developed an iPhone application that was

8 released on the App Store?

9 A.   I have not.

10 Q.   You've never developed an Android app that was released on

11 the App Store?

12 A.   I have not. However, if I can add, I have developed apps

13 on the iPhone for my own purposes. As I may have mentioned, I

14 think, I like to learn new languages, and the way I do that is

15 by developing code. So you can write or develop for the iPhone

16 but never release it, so I've done that.

17 Q.   You've never commercially released an app for the iPhone

18 or Android?

19 A.   I have not, no.

20 Q.   And you've never been hired as an iPhone or Android mobile

21 app developer?

22 A.   So just a caveat. So the HealthVault app, for example, is

23 a commercial release. It's an app that ran on phones, every

24 phone. And that's a commercial release. I didn't own -- I

25 don't own Microsoft, obviously, so I didn't develop the app for

1 myself, but I was part of that team.

2 Q.   You mentioned that you worked with libraries of code that

3 were precursors to SDKs?

4 A.   Yes.

5 Q.   And that was when you worked with PDAs and the Apple

6 Newton?

7 A.   Yeah.

8 Q.   How long ago was that?

9 A.   Long time ago. I'd have to look. In early nineties, late

10 eighties.

11 Q.   And the Facebook SDK didn't exist until 2010; correct?

12 A.   That sounds about right.

13 Q.   At Microsoft, how much of the app development for that

14 HealthVault app did you do personally?

15 A.   I was personally involved in the whole thing. I mean,

16 it's a gigantic company, so no one person writes all the code,

17 but that was -- I was directly involved in the architecture,

18 building of it, and all these things.

19 Q.   I'm asking you how much of that code did you write

20 yourself?

21 A.   I -- I don't know. If you're talking about what shipped,

22 I couldn't hazard a guess, because the engineer -- we -- you

23 want to have -- I ran the engineering teams. I wrote code and

24 checked in code, for example, functions, let's say, or to

25 sketch out the skeleton of the code, and then the engineers who

1 would scale it out to build the, you know, galactic scale app

2 built the rest of it. So I don't know. 10 percent of it.

3 Q.   You managed a team of engineers but you were not formally

4 hired as an engineer to develop that app?

5 A.   I was hired to start -- the -- help start the health

6 division, and the primary focus of that was a software

7 engineering function.

8 Q.   And the health division had engineers who worked in that

9 division?

10 A.   For me.

11 Q.   And those engineers wrote the code for the HealthVault

12 app?

13 A.   Yeah, sure.

14   THE COURT: I'll tell you what. I think I'm satisfied

15 he's qualified on mobile apps and SDKs with respect to mobile

16 apps.

17   MR. LEVIS: Okay.

18   THE COURT: Okay? Seems okay.

19   MR. LEVIS: Sure. We'll question him on the --

20   THE COURT: All right. So that will be the

21 qualification. This morning whoever is going to do the exam of

22 Mr. Karkanias, just make the qualification statement. I assume

23 there will be no objection, and I will qualify him and I'll

24 just say what I just said.

25   MR. LEVIS: Okay.

PROCEEDINGS

1   THE COURT: Okay. Thank you.

2   By the way tomorrow, if anyone says stand up, you can stay

3   seated.

4   THE WITNESS: I appreciate that. Thank you.

5   THE COURTROOM DEPUTY: All rise.

6   THE COURT: One more thing.

7   THE COURTROOM DEPUTY: Never mind. You may be seated.

8   THE COURT: Okay. Yes.

9   MR. CANTY: Thank you, Your Honor.

10   Pursuant to your pretrial order, the plaintiffs are

11   respectfully requesting permission to file a motion to exclude

12   the testimony of Laure Lydon and Susanne Schumacher, who have

13   been offered by Flo as potential witnesses in this case.

14   We're making -- we intend to make this motion pursuant to

15   Federal Rule 602.

16   THE COURT: What's the issue?

17   MR. CANTY: I'll start with Susanne Schumacher. She

18   was hired two years after the class period, and based on the

19   slides we received, she intends to testify about privacy

20   expectations and that she compared the privacy policies that

21   were in effect during the class period to privacy policies of

22   competitor fertility apps to show that they were reasonable.

23   This is completely improper. They've never offered her as

24   an expert, and merely saying that your policy was similar to

25   another app is not relevant and it doesn't go to the question

PROCEEDINGS

1   at issue. It's --

2   **THE COURT:** Did you depose Ms. Schumacher?

3   **MR. CANTY:** Did we --

4   **MS. SHARTON:** Yes.

5   **MR. CANTY:** We deposed Ms. Schumacher, and she did not

6   offer these opinions.

7   And additionally, Laure Lydon -- if you recall,

8   Mr. Karkanias was offered as an expert engineer on the

9   functionality of the app. Your Honor instructed Flo to make an

10   engineer available so that we could depose that engineer, who

11   would talk about -- intelligently about the functionality of

12   the app.

13   Flo put up Laure Lydon, who joined the company one and a

14   half years ago.

15   **THE COURT:** Schumaker first. Schumacher or Shoemaker?

16   **MR. CANTY:** Schumacher.

17   **THE COURT:** All right. What's the deal with

18   Ms. Schumacher?

19   **MS. SHARTON:** So Ms. Schumacher -- before I get to the

20   substance, Your Honor, Ms. Schumacher is the head --

21   **THE COURT:** Get over of here. You're too far away.

22   You guys can share a podium.

23   Okay. Go ahead.

24   **MS. SHARTON:** Thank you.

25   Before I start, so Ms. Schumacher was the 30(b)(6) and

1 they deposed her, and she is -- was the head of privacy and the

2 data protection officer at Flo. She's not being offered as an

3 expert in any way, shape, or form.

4   I will say just as a threshold matter she and Laure Lydon

5 were disclosed on May 29th. Just six Flo employees that we

6 might call and with their time designations on May 29th. They

7 flew in yesterday from Scotland and England, and for the first

8 time last night, they've raised this issue.

9   Ms. Schumacher -- you know, I think their concern is not

10 really valid because she's just going to talk about --

11   **THE COURT:** She's got no opinions.

12   **MS. SHARTON:** She's not --

13   **THE COURT:** I'm -- that's fine. I'm not going to

14 preempt anything, but, you know, she can't start riffing on

15 "here's a good privacy policy" unless it's from her own

16 perspective as someone who did it.

17   But you're going to have to make sure it's just based on

18 her own personal experience and knowledge.

19   **MS. SHARTON:** At Flo. She's going to talk about Flo.

20   **THE COURT:** That's fine. That's fine.

21   **MS. SHARTON:** That's all she's going to do.

22   **THE COURT:** Yes, go ahead.

23   **MS. SHARTON:** Do you want him to go first and --

24   **THE COURT:** I wanted to hear from your colleague.

25   Who's the other person?

PROCEEDINGS

1   **MR. CANTY:** Your Honor, as you will recall, defendant

2 Flo offered up Mr. Karkanias as an expert on the functionality

3 of the Flo Health app. Your Honor precluded that testimony and

4 ordered Flo to produce a witness who was an engineer who would

5 testify intelligently about the functionality of the app.

6   Flo offered up Laure Lydon. We deposed her, and in her

7 deposition she indicated that she's been with the company for

8 about a year and a half. She's not an engineer.

9   **THE COURT:** She's been at Flo for a year and a half?

10   **MR. CANTY:** Yes.

11   **THE COURT:** Okay.

12   **MR. CANTY:** She -- and in preparation for her

13 testimony, she relied solely on information from third parties,

14 including engineers at Flo, reviewing deposition testimonies of

15 witnesses that have been deposed from Flo --

16   **THE COURT:** Well, she was the 30(b)(6) witness, wasn't

17 she?

18   **MR. CANTY:** She was not. She was a witness that was

19 being offered as a technical expert on the functionality of the

20 app, and she -- all her answers relied on information that was

21 referred to her. And this is the most important: She said she

22 reviewed the expert report that had been essentially precluded

23 to enlighten her as to how the app worked. She has no

24 firsthand or personal knowledge.

25   So under 602, she can't testify as to what other people

1 told her, and she described it as her investigation that she

2 conducted where she interviewed these third parties, read

3 expert reports, read deposition testimony, and then simply

4 regurgitated that information in her deposition.

5   **THE COURT:** Who's the third -- what do you mean by

6 third parties?

7   **MR. CANTY:** Third parties would be --

8   **THE COURT:** Former employees?

9   **MR. CANTY:** These are actually Flo employees. When I

10 say "third parties," I'm actually referring to Flo employees

11 that are still working at Flo that are unavailable to testify.

12   **THE COURT:** Okay. Still working for them.

13   **MR. CANTY:** Correct.

14   **THE COURT:** Flo?

15   **MS. SHARTON:** I'm a little confused, because when we

16 asked them who they wanted to come testify, we said: Who do

17 you want from Flo?

18   We were given four names by the plaintiffs. Laure Lydon

19 was the first name. And I wrote back and said we will make her

20 available either in your case-in-chief or ours; you choose. So

21 this is someone they asked for.

22   We brought her. She's here. And you'll recall, Your

23 Honor, on May 15th, when you ordered that she be deposed and to

24 testify at trial -- and we said we're going to be worried about

25 whether she has personal knowledge, and you --

1   THE COURT: This is because you couldn't find any

2 engineers; right?

3   MS. SHARTON: Yes, this is because there was --

4   THE COURT: You couldn't find the engineers?

5   MS. SHARTON: Exactly. So in order for her

6 deposition -- and also, here's what you said on the record on

7 May 15th.

8   You said, "Here's what we're going to do. You're going to

9 designate a person most knowledgeable to testify at trial" --

10   THE COURT: Can you just pause?

11   I thought it was a 30(b)(6) person.

12   MS. SHARTON: Yeah. It says -- you said it's like a

13 30(b)(6).

14   THE COURT: Yeah.

15   MS. SHARTON: And then you said: You all are not

16 going to object to that; right, plaintiffs?

17   And they said no.

18   THE COURT: My understanding was it was effectively a

19 person most knowledgeable.

20   MS. SHARTON: And the way you said it is we're going

21 to treat it like a treating physician, so we got her all

22 ready --

23   THE COURT: Did I say that?

24   MS. SHARTON: You did. And she -- so that's why I'm

25 confused. They asked for her and now they're saying --

1   THE COURT: We'll leave the physician part out, but

2   that was my concept.

3   MR. CANTY: And we understand that, Your Honor. I

4   think the analogy would be --

5   THE COURT: You just objected that she didn't have

6   personal knowledge, but 30(b)(6) person doesn't have to have

7   personal knowledge.

8   MR. CANTY: But essentially this is like asking the

9   receptionist to talk about the medical practice.

10   THE COURT: You'll have a lovely cross-examination,

11   but I'm not going to exclude her because I did say -- there was

12   apparently a shortfall of people who knew how things worked,

13   and Flo had the duty of making that person the ultimate

14   spokesperson for the company about this technology.

15   They're going to live or die. Who knows? It's not up to

16   me. They'll live or die based on how well they did that, and

17   you should be champing at the bit to examine her.

18   MR. CANTY: Thank you, Your Honor.

19   THE COURT: All right. I'll see you in the morning.

20   Oh, make sure the person who has the visa problem is just

21   on standby. I don't know when or where, but it might happen

22   tomorrow.

23   MS. SHARTON: Understood.

24   MR. CANTY: Your Honor, just for the record, with

25   respect to Ms. Schumacher, are we permitted to file a motion to

1 preclude her testimony?

2   THE COURT: I just resolved all your issues. No

3 motions. No filings.

4   MR. CANTY: Yes, Your Honor.

5   THE COURTROOM DEPUTY: All rise.

6   (Proceedings adjourned at 3:13 p.m.)

7   ---o0o---

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9   **CERTIFICATE OF REPORTER**

10   I certify that the foregoing is a correct transcript

11 from the record of proceedings in the above-entitled matter.

12

13 DATE: Wednesday, July 23, 2025

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18 _____
    Ruth Levine Ekhaus, RMR, RDR, FCRR, CCG, CSR No. 12219
              Official Reporter, U.S. District Court

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